

Rhode Island Charter Public Schools

Charter Proposal Cover Sheet

Name of Proposed Charter School: Rhode Island STEAM Academy

Proposed Location of School: Middletown and/or Newport

Proposed Sending District(s): Newport, Middletown, Jamestown, Portsmouth

Primary Contact: Elizabeth Cullen

Proposed Role with Charter School: Board member

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Proposed enrollment during initial five-year charter term:

School Year	Grade Levels	Total Enrollment	# of school sites
2015/16	K to 1	150	One
2016/17	Pre-K to 2	225	One
2017/18	Pre-K to 3	300	One
2018/19	Pre-K to 4	375	Two
2019/20	Pre-K to 5	450	Two

Proposed grade levels when fully expanded: Pre-K to 6

Total student enrollment when fully expanded: 525

Total number of school sites when fully expanded: Two

Charter School Type: Independent Charter School

Establishing persons or entities (in accordance with RIGL § 16-77.2-1, 16-77.3-1 or 16-77.4-1):

Arts and Cultural Alliance of Newport County Inc.

Person or Representative of Entity Establishing the School:

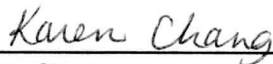
Signature: 

Print Name: Mr Terry Dickinson

Position/Title: Arts and Cultural Alliance of Newport County Inc. / President

Date: May 14, 2014

Additional Representative from Applicant Group:

Signature: 

Print Name: Karen Chang

Proposed Role with Charter School: Board member

Date: May 15, 2014



APPLICATION TO
RHODE ISLAND DEPARTMENT OF EDUCATION
FOR AN INDEPENDENT PUBLIC CHARTER SCHOOL

ORIGINALLY SUBMITTED March 31, 2014
REVISIONS SUBMITTED May 16, 2014

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Executive Summary

Mission Statement “The mission of Rhode Island STEAM Academy (RISA) is to prepare all K-6 students for success in secondary and post-secondary education by building an academic, social, and technological foundation emphasizing mastery, critical thinking, and innovation using an integrated, project-based science, technology, engineering, arts/design and mathematics (STEAM) curriculum.”



The Need RISA’s need-driven proposal for an independent public charter school is a refreshing and innovative way forward. By tapping nationally recognized intellectual talent, we will: (1) significantly raise the math/science/reading performance bar for all area elementary students; (2) push past deep-rooted biases; and (3) reduce chronic achievement gaps. RISA’s integrated curriculum delivers gender and minority equity by cementing in place a strong, grade K-6 foundation that unlocks the relevance of “STEAM” (science, technology, engineering, arts, and mathematics) for our youngest learners and their families.

A sense of deep anxiety continues to take hold across Rhode Island as it remains saddled with one of the worst unemployment rates in the United States. We know that our Massachusetts neighbor undertook major educational reforms over 10 years ago and is delivering strong public school results on an international scale. Yet, Rhode Islanders appear stuck in neutral, debating high school graduation requirements, challenging the wisdom of using the Common Core State Standards, and allowing non-essential issues like voting whether calamari should become the state’s official appetizer, to cloud our state’s collective imperative: fix what’s broken and move the needle forward. RISA's lively founding group will continue to channel the U.S. Navy’s Seabee-inspired "Can Do" spirit and provide both force and focus to boost Rhode Island's economy.

The Goals RISA will be held accountable using measurable goals. Students will meet or exceed statewide performance levels in reading, writing, mathematics, and science. Eighty percent of students will progress through grade level benchmarks with ten percent of students reaching grade-plus-one level benchmarks in at least one discipline. Ambitious goals will exist for learner engagement, family and community participation, summer school enrichment, faculty and staff retention, and leadership in the establishment of national STEAM accreditation standards.

The Applicant Group We are a group of seasoned professionals with deep experience in education, the sciences, the U.S. military, the commercial financial and technology sectors, government, and civic engagement. We are excited that the official sponsor of this proposal is the Arts and Cultural Alliance of Newport County, which has been advocating on behalf of the county’s arts and cultural community since 1992.

The Educational Program, Unique Features & Teaching Model Closing the performance gap in mathematics, literacy, and science is critical. We will achieve this goal by integrating art and design with STEM subjects. An interdisciplinary STEAM program -- employing inquiry and

project-based learning -- will increase learner engagement, foster creativity and innovation, and drive academic performance.

RISA's teachers will focus on English language arts, social studies, and a numeracy-rich STEAM program. High-quality, researched-based, nationally field-tested, standards-driven academic curricula with track records of success will be used to ensure our learners achieve high global standards.

Using an integrated, project-based STEAM curriculum at the elementary level is a rapidly growing trend that we will launch in Rhode Island. We have a unique opportunity to leverage RISD's international STEM-to-STEAM movement and to function as both a high performing public school and an incubator for early learner STEAM education research.

RISA's teachers will be supported in delivering inquiry and project-based STEAM curriculum through a professional learning community (PLC) led by the Curriculum and Professional Development (CPD) team. The CPD team will lead RISA's PLC in researching best practices, and developing innovative STEAM curricula.

Management Structure The school has been designed with a lean overhead structure to maximize resources flowing to learners and teachers. Students – coming from Jamestown, Newport, and Middletown, and Portsmouth – will be chosen via blind lottery. We are seeking RIDE's permission to provide additional lottery weight for students eligible for free/reduced price lunch.

Organizational Plan & Linkages Our diverse community will be well represented across RISA's board of directors, who will be responsible for selecting the head of school shortly after receiving initial state approval. The concept for this school has been presented to many community leaders. Their reception and responses have been positive.

Some Facts There is a need to dispel the hackneyed myths that continue to marginalize public charter schools by provoking fear and uncertainty. Our community needs to know that charter schools are tuition-free public schools; are open to everyone in the catchment area; have no entrance exams; must adhere to all state and federal regulations plus all mandates pertaining to public bodies, including reporting financial statements; adhering to open meetings laws; and embracing safety, health, and civil rights laws. Yes, the presence of a charter school shifts the flow of local funding, since the money follows the child, but this upfront investment creates opportunities for social, academic, and economic rewards that benefit all our communities.

"The world demands the qualities of youth: not a time of life, but a state of mind, a temper of the will, a quality of imagination, a predominance of courage over timidity, of the appetite for adventure over the love of ease."

– Robert F. Kennedy, 1966, South Africa

Summary RISA's founders aim to instill a passion for learning. We choose to espouse a creative culture through questioning, problem-solving, collaborating, and deep-thinking. We choose to recalibrate our nation's consumer-driven trajectory by advancing a purposeful STEAM pathway to productive, contributing, and satisfying futures.

I. Mission Statement

The mission of *Rhode Island STEAM Academy (RISA)* is to *prepare all* K-6 students for *success* in secondary and post-secondary education by *building* an academic, social, and technological foundation emphasizing *mastery, critical thinking, and innovation* using an integrated, *project-based* science, technology, engineering, arts/design and mathematics (STEAM) curriculum.

This initiative embraces Rhode Island's history in art, design and manufacturing to address compelling educational needs using STEM with the Arts to inspire the use of a new learning model.

- “*Rhode Island*” – while the school will start in the Middletown area, the curriculum model is designed to be scalable and replicable to other districts.
- “*Prepare*” – infuse learners with tools to solve real-world problems through STEAM perspectives.
- “*All*” – students not excelling on standardized math and science tests and are less likely to pursue STEAM careers, such as females, non-whites, and the socio-economically challenged; also RI's talented students who are not being sufficiently challenged.
- “*Success*” – attaining the highest standards of achievement and performance in subsequent curricula and non-curricular experiences. Our learners are expected to analyze increasingly complex problems and exhibit personal adaptability, resilience, and social growth.
- “*Building*” – blending exceptional teachers, innovative STEAM curricula, and appropriate tools to support an uplifting academic culture.
- “*Mastery*” – spending more time across fewer topics, enabling a deeper understanding and achievement well above proficiency standards.
- “*Critical thinking*” – assessing strengths and limitations of plans, processes and results.
- “*Innovation*” – an attitude and approach towards discovering and pursuing opportunities in ways not constrained by the present; a mindset that embraces critical questioning, service, continuous improvement, and the ability to lead people to make those changes to achieve a goal that improves our community.
- “*Integrated*” – coordinating subjects within a formal educational structure to develop interdisciplinary curricula.
- “*Project-based*” – developing knowledge by solving problems through personally discovering, creating, designing, and building tangible projects.

II. Community Need and Support

1) Targeted communities

Students will only be drawn from Jamestown, Newport, Middletown, and Portsmouth. The founding group team has carefully reviewed town-level demographic and educational indicators from *Rhode Island Kids Count 2013 Factbook* which is available through the online RISA “bookshelf” at <http://bit.ly/risteam>

2) Targeted student population

- Grades Pre-K through 6
 - Launching Year 1 at Grades K and 1
- Adding one grade level per year
- Gifted/advanced/talented students
- At-risk students from Newport and Middletown, in particular
 - At least 51% Free Reduced Price Lunch (FRPL) eligible students
 - Section XI Variances includes a request for the use a weighted lottery

3) Rationale and significance

Rhode Island's leaders are desperate to “move the needle” as they continue to grimace at the condition of the state's economy. Their faces reflect the pain that we are saddled with the worst (or next to the worst) unemployment rate in the U.S., that the state's population is declining and aging, and that gambling revenues will be under increasing assault from casinos in Massachusetts and Connecticut. A 2013 report, sponsored by the Rhode Island Senate Policy Office and the Rhode Island Public Expenditure Council, began with this cold fact: “In its annual “Top States for Business” rankings, published on July 10, 2012, CNBC ranked Rhode Island 50th of 50 states on how appealing the state is to start or grow a business. This ranking was consistent with other recent analyses that placed Rhode Island at or near the bottom of states for economic competitiveness” (RIPEC, 2013). Over two years later, policy makers know that they need to change the game but are struggling to define the strategy at the start of the 2014 re-election season.

At the same time, Rhode Island’s civic and business leaders – looking at exemplary academic achievement occurring in Massachusetts – have registered ongoing concerns about the difficulties finding skilled STEM workers for our region’s health, medical, environmental, defense, and marine sectors. Stubborn achievement gaps exist and the absence of STEM-rigor persists for Rhode Island's students at all grade levels. RISA's founding group fervently believes that it can play an important trailblazing role as an “innovative disruptor” as Rhode Island and other states confront their STEM shortfalls.

"You have a choice: you can either create your own future, or you can become the victim of a future that someone else creates for you. By seizing the transformation opportunities, you are seizing the opportunity to create your own future."

–VADM Arthur Cebrowski, former President, Naval War College and transformational thought leader of net-centric warfare

Local school districts have reacted lethargically to the market demands. A 2012 Middletown Patch article written by town council president Chris Semonelli was the catalyst for K-12 STEAM charter school proposal in 2013. As a founding member of that particular proposal effort, Mr. Semonelli recently organized an April 2014 Rhode Island STEAM Summit at Salve University in April 2014 for the purpose of sharing lessons learned from Massachusetts' STEM initiatives and by seeking to apply them in Rhode Island where there is a widely accepted belief about a compelling *state-level* need for a STEAM-literate workforce.

Our specific rationale for the selection of these communities include:

- Well documented academic achievement gaps in Newport and Middletown;
- 21st Century Skills Assessment showing >25% of Newport, Middletown, and Portsmouth 8th graders not achieving at least the level of “Proficient”;
- Documented chronic school absence issues in Newport and Middletown;
- A postulated boost of \$360 Million in new homeowner equity atop local residential tax base of more than \$7.2 Billion by operating forward leaning, public grades K-6 school;
- Founding members who are acquainted with Portsmouth's tentative, public plans to employ limited STEAM offerings within its high school and (reported late March 2014) in Grades 3-5;
- An existing defense and commercial STEM footprint on Aquidneck Island
- Our arts connection via our sponsor the Arts and Cultural Alliance of Newport County Inc and its support of RI's new “State of the Arts” economic development initiative;
- Strong local/state/federal desires to grow additional jobs in the new areas of maritime industry cyber protection and climate change/resilience and countermeasures;
- Founding group members who have a deep understanding of education vs town politics within Newport and Middletown;
- The opportunities and challenges associated with school district unification between Newport and Middletown are currently in play;
- Our group's good rapport with one local middle school and our vision to see it morph into a STEAM-focused middle school (following district unification actions);
- A founding group member who is a Newport council member and represents the city's low-income housing communities, is a member of the council's school liaison group, and is currently participating in the now-tepid unification discussions;
- Key state senators – with whom we have consulted – are driving “Rhode to Work” initiatives and represent Newport and Middletown.
- Hypothesized economic synergies of linking local “RI State of the Arts” interest and “Rhode to Work” by fostering and sustaining greater numbers of STEAM-interested and motivated learners at Grades K to 6.

4) Consultation with community members

We have had heavy consultation with local community and several state leaders. Newport County is rich with STEM and arts community resources and highly experienced professional and civic leaders. Since November 2012, members of the founding group have met formally and informally with over 30 community partners to share our thoughts concerning local needs and the potential for STEAM. In our meetings, we have summarized our view of the regional needs, described how this approach to early education works, its importance, and where it is working with the U.S. Then we've listened.

The following table summarizes key community outreach activities, to date:

Organization	Person(s)
Newport Housing Authority	Jim Reed (Executive Director) and Frank Landry (chair)
East Bay Community Action Program (EBCAP)	Susan Schenck (Chief Operating Officer)
Boys & Girls Clubs of Newport County	Joe Pratt (Executive Director); former City of Newport council member
Newport County YMCA	Mike Miller (Assoc Executive Director/Newport parent of a preschool age child)
Martin Luther King Center	Marilyn Warren (Executive Director)
Women's Resource Center	Jessica Walsh (Director of Prevention)
Newport Hispanic community	Mayra and Miguel Minino (NPS parents)
van Beuren Charitable Foundation	Deborah Linnell (Program officer)
Newport Public Schools	Colleen Jermain (Superintendent)
Newport Public Schools	Dr Jennifer Booth (Exec Director of Teaching and Learning)
Newport Public Schools	Jaime Crowley (Principal, Thompson Middle School)
Middletown Public Schools	Rosemarie Kraeger (Superintendent)
Newport County Regional Special Education Services	Rachel Santa (director)
Arts & Cultural Alliance of Newport County	Terry Dickinson, John Hirschboeck, Cris Offenber, Dominique Alfandre (officers, directors)
The John Clarke Society	James Wermuth (Executive Director)
FabNewport	Nick Logler, Steve Heath
Aquidneck Island Broadband Project	George Barcus (Director)
Educator in robotics and MIT SCRATCH; adviser to FabNewport	Tom Kowalczyk
Former mayor, City of Newport; Former chair, Newport Public Schools	David Gordon
International Yacht Restoration School	Melissa Flaherty (marketing), Newport parent

Organization	Person(s)
Aquidneck Island Planning Commission	Tina Dolen (Executive Director)
Mayforth Group	Keith Stokes (President of Econ Development & Planning)
City of Newport	Paul Carroll (Director of Civic Engagement)
City of Newport	Louisa Boatwright (Secretary, Finance Review Committee)
City of Newport	Michael Farley, Council member (at large)
RI School of Design	Stephen Metcalf (Trustee), Babette Allina (Director, Government Relations)
Brown & RISD STEAM Clubs	Michelle Site, Hannah McPhee, Lukas WinklerPrins, and Ryan Mather (officers)
RI-CAN	Christine Lopes Metcalfe (Executive Director)
Teach for America	Heather Tow-Yick (Executive Director)
Rhode Island Mayoral Academies	Michael Magee (CEO)
St. Joseph's Church, Newport	Fr. Ray Malm (Pastor)
RI State Senate	Teresa Paiva-Weed (President; District 13)
RI State Senate	Lou DiPalma (District 12)
RI State Representative	Linda Finn (District 72)
RI State Representative	Marvin Abney (District 73)
RI State Representative	Peter Martin (District 75)

5) Community engagement strategy

The RISA team knows that it is going to take a village (and the development of a new-to-the-region STEAM ecosystem) to achieve our goals to:

- raise the math, science, reading, and writing achievement bar for all students: the challenged, the proficient, and the advanced, beginning with our youngest learners.
- pull down the remaining “tribal” walls of suspicion and mistrust so all can more easily share best practices, connections, and professional development across school districts and community stakeholders.
- inspire all our students to pursue STEAM dreams with passion, knowledge, and hopefulness.
- aggressively involve our community's pool of inspirational volunteers, mentors, and advocates to nurture and encourage student and family success.
- promote a stronger “sense of place” by showing the cultural, architectural, and maritime history.

We know that creating such a “village” will be an ongoing challenge since this part of Rhode Island typically places a premium on “style” over “substance.” We know that our local governments are not comfortable openly discussing the performance of town/city department and then having broad community discussions on the relative importance of funding the municipal services, including schools. We are having discussions with some members of the community on what a “RISA Community Framework” might look like that leverages a set of “better practices” that could be used to overcome this area's reflexive parochial and myopic behaviors.

From a planning and operations perspective, we will be sourcing management and teaching talent on a regional and national basis. We are uncomfortable simply following well-worn local pathways.

From a governance perspective, we will be tapping community organizations and members that have shown themselves to be performance-driven and are willing to be measured against national and global standards.

In order to build a regional learning ecosystem we will need to fashion a community organizing framework:

- We have consulted with a member of the community with experience in the public health sector, Ms. Jessica Walsh, who has community organizing experience;
- We have dusted off documents from the former Newport civic group “CONGO” or “Coalition of Newport Grassroots Organizations” which was active in the pre-Internet 1990s and helped to build community consensus around various local topics;
- We are studying the model behind the Lyceum of Monterey County (Calif) that fosters lifelong learning through an experiential model and has operated since 1960;
- We are studying FEMA's new planning and response paradigm called “*Whole Community*” which pushes for engagement with a broad set of community stakeholders;
- We anticipate working with the Newport Public Education Foundation (NPEF) and other organizations to sponsor a multi-community conversation around the future of education. NPEF last held a broad community discussion in 2005 which yielded a short-lived project called “Operation CAUSE: Community Action - United, Supporting Education” which was the catalyst for subsequent actions that led to the consolidation of Newport's old elementary schools and the construction of the Pell Elementary School.

6) Describe the extent to which community partners or relationships will create opportunities for students and support the mission and success of the school.

Hillary Clinton, in her 1996 book, *It Takes a Village: And Other Lessons Children Teach Us*, brought the ancient African proverb firmly to the center of the educational and political policy debate. From the Oval Office to Mid-Western PTA meetings, to Silicon Valley and back to the Wall Street cocktail party circuit, everyone was talking about how we educate our children and

how much responsibility we as citizens have to give every American child a quality education. The line was drawn. In order for the United States to remain the world's economic leader, we all must rethink how we educate our children from cradle to career.

RISA will encourage all our partners to share their talents and backgrounds. We know that every member of the community has something to offer our children. From grandparents reading Spanish story books and sharing their cultural traditions, to local artists and cultural leaders introducing the myriad of beauty that lies in our backyards, to institutions of higher learning having a place for their students to work one-on-one with children, to corporate, government, and non-profit professionals mentoring families and faculty...the involvement of all stakeholders will be necessary to ensure that RISA's learners excel. Dreamers, mentors, role models, and makers will all have a place at the RISA table!

Works cited

Rhode Island Senate Policy Office, Rhode Island Public Expenditure Council. N.p.. (2013).
<http://www.ripec.org/pdfs/2013-Moving-the-Needle.pdf> (Accessed on March 20, 2014).

III. Goals

As a carpenter uses tools from a toolbox to craft actions that construct a project or home, the assessments described in the Rhode Island Charter School Performance Review Handbook enable insight into the value and merit of the learning from a curriculum or program construct.

A carpenter chooses the appropriate tool like the educator selects the best assessment to accomplish the task. Various tools help facilitate planning and revising in order to shape and build like insightful assessments help clarify support or disappointment when reinforcing or retooling curricular tenets. Tools help the carpenter envision the approach of essential actions to complete a project. Assessments help the educator ascertain the approach and metrics needed to measure and confirm the success of goals. To that end, RISA looks forward to using the RIDE approved assessments in order to cognitively hone our delicate learners into becoming shaped and molded as STEAM learners toward academic maturity and a lifetime of service.

After finishing the building, being careful to follow all building codes, the carpenter stands back and admires the beauty of the edifice, gratified that someone has purchased it because they fell in love with it. After finishing the learning path, being careful to follow all safety and learning rules, the educator stands back and admires the beauty of the well educated soul, gratified that their next step in learning will occur because they've been accepted for further study in challenging STEAM subjects, the focus of their passion.

Available cognitive assessments gauge learning in order to evaluate the RISA program and guide future developments. Essentially, these assessments will provide indicators of effectiveness and accomplishment. Goal accomplishment supports the plan to add grade-level enrollments and the potential to provide a STEAM curriculum elsewhere in RI. Clearly, among the concerns required to become successful are the following: learning excellence, health and safety, financial solvency, legal / regulatory adherence, stakeholder approval, parental support, political support, etc. These all require viability and integrity under the aegis of RIDE and tax payer support. The focus below, however, limits the scope to requested metrics for the learning components of RISA's goals.

RIDE assessments determine the effectiveness of meeting benchmark goals established for a standards-based learning model. Disciplines are taught with a common core of learning objectives with common assessments throughout the state. Formative, interim, and summative assessments provide rich data sets. Statistical analysis of the data provides a wealth of information from which one can determine the effectiveness of the learning model. Student achievement is based upon performance metrics, the tools that provide evidence of goal accomplishment.

RISA is committed to meeting and exceeding established goals evident of the promise resulting from a STEAM curriculum and concomitant with an assurance of continuation. The set of goals constitute an accountability pact with RIDE, RISA personnel, parents, students, and the public at large. The first two goals address targets described in the handbook for non special needs students. The next goal assesses academic progress of students that include special needs students. The remaining two goals address organizational interests. Along with the transition

RIDE is making with the implementation of the Common Core State Standards (CCSS), RISA will replace the currently used NECAP as indicated below with PARCC.

Goal 1: Academic accomplishment.

Meet or exceed the statewide established levels of performance in reading, writing, mathematics, and science for summation and accountability.

- NECAP (Reading and Mathematics – Grades 3-6)
- NECAP (Writing – Grade 5)
- NECAP (Science – Grade 4)
- Developmental Reading Assessment 2 (DRA 2) – Grades K-1

Goal 2: Academic development.

80% of students meet or exceed expectations for progression through grade level benchmarks.
10% of students will reach grade-plus-one level benchmarks in at least one discipline.

- Developmental Reading Assessment 2 (DRA 2) – Grades K-1
- National Assessment of Educational Progress (NAEP) – Grade 4

Goal 3: Academic performance.

80% of students who qualify for IEP will reach grade-level proficiency on statewide established targets.

- RI Alternate Assessment (Reading & Math – Grades 2-6, Writing – Grade 4, Science – Grade 4)
- WIDA ACCESS Placement Test (W-APT) – Grades K-6
- Assessing Comprehension and Communication in English State-to-State (ACCESS for ELLs) – Grades K-6

Goal 4: Learning participation.

Establish gainful learning habits and behaviors.

- 100% of students in attendance fulfill participatory expectations for responsiveness and activity practices.
- 80% of students read 20 equivalent grade-level books.
- 40% of students read 50 equivalent grade-level books.
- 20% of students read 25 equivalent grade-plus-one-level books.
- 80% of students complete all steps of assigned STEAM projects.
- 80% of students will make daily journal entries.
- Attendance and tardy rates will be respectively higher and lower than the representative-weighted averages of non STEAM students in representative schools / districts.
- Reading Logs
- STEAM Projects Logs
- Journal Logs
- RI Attendance and Tardy Records

Goal 5: Organizational community and educational environmental culture and/or climate.

Create and maintain a successful inclusive educational environment and community.

- 80% of parent survey responses indicate satisfaction.
- 80% of students participate in at least one community service project.
- 80% of students complete 80% of the expectancy level of homework assignments.
- Incident rates of discipline are below the representative-weighted averages of non STEAM students in representative schools / districts.
- Lottery demand exceeds available supply.
- 80% of students participate in summer enhancement programs.
- Teacher and staff retention rates exceed representative-weighted averages at representative schools / districts.
- 100% of available faculty and staff members participate in professional development during the school year and during the summer months.
- 100% of available faculty members participate in leadership roles sometime during the school year and outside their RISA teaching capacity either in or out of the RISA domain.
- Financial audits meet state and local requirements.
- Parent Surveys
- Community Service Logs
- Homework Records
- RI Records of Discipline
- Lottery Records
- Summer Enhancement Program Enrollment
- RI Records of Teacher Retention
- Professional Development Logs
- Audit Records
- RISA Club or Community Records

Goal 6: STEAM accreditation.

- Establish and reach STEAM project-based-learning benchmarks characteristic of an integrated-discipline STEAM curriculum morphed from the initial “Project Lead the Way” and “Full Option Science System” STEM programs that are likely to include inquiry-based learning approaches.
- Establish and implement mutually agreed standards with STEAM practitioners and with the concurrence from the RISD STEAM leadership.

IV. Educational Program

IV(a). Guiding Principles

The core beliefs and values of the Rhode Island STEAM Academy have been aligned with the school's mission to prepare all K-6 students for success in secondary and postsecondary education by building an academic, social, and technological foundation emphasizing mastery, critical thinking, and innovation using an integrated, project-based science, technology, engineering, arts/design and mathematics (STEAM) curriculum. We believe:

1. Closing the performance gap in mathematics and science, as well as in literacy, can potentially be facilitated by integrating the arts into STEM instruction.

J. H. van't Hoff, the first Nobel Prize winner in Chemistry (1901) was the first to suggest that scientific imagination is correlated with creativity outside of science, such as in the visual arts and music (van't Hoff, 1967). This speculation was later repeated by other Nobel Laureates, such as Santiago Ramon y Cajal (1951) and Wilhelm Ostwald (1909). Several studies have reported a correlation between the number of artistic avocations and scientific success. One study of 40 scientists found that the most successful scientists (4 Nobel Prize Laureates and 11 members of the US National Academy of Sciences) were significantly more likely to be engaged in a fine arts or music avocation than their less successful colleagues (Root-Bernstein, Bernstein, and Garnier, 1995). Two other more recent studies have also confirmed these results (Root-Bernstein and Root-Bernstein, 2004; Root-Bernstein, 2008). The 2008 study found that the typical Royal Academy and National Academy of Science member are twice as likely to have arts and crafts avocation than the U.S. public, and that Nobel Laureates are three times more likely than the U.S. public.

Root-Bernstein (1989) has shown that successful scientists develop correlative talents that combine their professional scientific work and artistic vocations into what has been called "integrated activity sets" or "networks of enterprise." These terms describe the ability of innovative scientists to connect the skills they learned from exploring a wide variety of unrelated activities with their scientific work into integrated networks that allows them to raise and solve important scientific problems. Many Nobel Prize (NP) winners, Royal Society and National Academy Of Science members, such as Albert Einstein, Peter Mitchell, Carl Weiman, Henry Kendall, W.H. Bragg, W.L. Bragg, Walter Hess, Steven Chu, Albert Michelson, Roald Hoffmann, and Richard Feynman, have attributed their scientific success to their arts-related avocations (Root-Bernstein, 2008).

"... artists and designers in partnership with those developing scientific and technical solutions can ask deep questions, bring humanity to the problem, make us care and create answers that resonate with our values. And that is what will propel us forward."

—John Maeda, artist, computer scientist and former president of RISD

This research has many important implications for K-12 education such as that (a) arts learning fosters creativity, risk-taking and seeing multiple solutions, all of which are useful in a variety of contexts; and (b) arts-rich curricula contribute to a students' self-identification as a learner, thus facilitating the process of learning. Both of these implications surmise that an interdisciplinary

program integrating the areas of science, technology, engineering, arts and mathematics (STEAM) can increase student engagement and unlock creativity and innovation, thus potentially closing the achievement gap. We have identified several frameworks for art integration that can help RISA teachers and curriculum researchers modify high quality, research-based STEM curriculum that we plan to purchase, as well as develop new and innovative STEAM curricula of our own.

One of these thinking frames is Artful Thinking, which was a collaborative program of Project Zero, an educational research group at the Harvard Graduate School of Education and Traverse City, Michigan Area Public Schools. The purpose of the Artful Thinking Program is to (1) help teachers create rich connections between the visual arts and music to curricular topics; and (2) help teachers use art via thinking routines to strength how students think and learn. These thinking routines as visualized through the Artful Thinking Palette (shown to the right), “are short, easy-to-learn mini-strategies that extend and deepen students’ thinking and become part of the fabric of everyday classroom life. They are used flexibly and repeatedly -- with art, and with a wide variety of topics in the curriculum” (Artful Thinking, 2014). The Artful Thinking Program has so far been used mostly to make curriculum connections to the language arts and social studies. However, they do provide a few examples using STEM topics, which will serve well as models for the RISA staff and teachers to not only modify existing STEM curriculum programs but also to develop new ones.

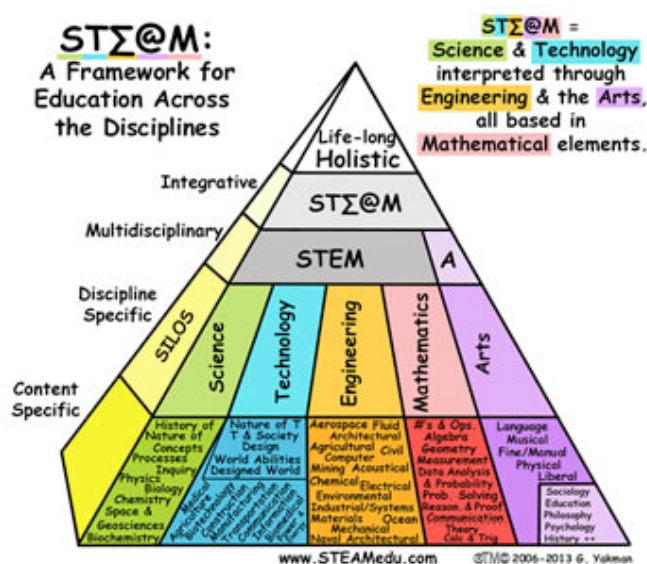


A second framework for art integration is another collaborative Harvard Project Zero research program with the Municipal Preschools of Reggio Emilia, Italy, called Making Learning Visible (MLV). The goal of MLV is to help teachers and students learn how to document and exhibit work in a way that is supportive of collaborative learning groups and makes the learning process of both the group and the individual visible to teachers, students, and parents, as well as the community. The two main features of MLV are learning groups and documentation, which are both essential to the mission and culture of RISA. According to MLV, learning groups are “a collection of persons who are emotionally, intellectually, and aesthetically engaged in solving problems, creating products, and making meaning--an assemblage in which each person learns autonomously and through the ways of learning of others. Learning groups facilitate a kind of learning that is qualitatively different from that of individuals learning alone” (Project Zero and Reggio Children, 2001). The use of learning groups is compatible with the mission of RISA since we intend to implement project-based learning (the second guiding principle to be discussed in the following section). MLV describes documentation as “visible listening,” which are “the construction of traces (through notes, slides, videos, and so on) that not only testify to the children's learning paths and processes, but also make them possible because they are visible” (Project Zero and Reggio Children, 2001). RISA will use Making Learning Visible, a

framework that concurrently fosters professional development and optimal group learning, to support our teachers and staff to work together as they attempt to understand, assess and extend student learning through the arts.

Both Artful Thinking and Making Learning Visible have been used at schools across the country. Artful Thinking has been implemented in Traverse City area schools in Michigan. Making Learning Visible has collaborated with charter schools and district public schools in Cambridge, Boston, Ohio, California, and was even partly funded by the Massachusetts Department of Education. Recently, Making Learning visible collaborated with Ready to Learn Providence and eight inner city early childhood centers in Providence on a professional development and advocacy project, the results of which were published in a book, *Places to Play in Providence* (Making Learning Visible and Ready to Learn Providence, 2011).

The third framework for art integration that will guide RISA's curriculum decisions and design was developed by Georgette Yakman, which she calls the STEAM framework. According to Yakman, STEAM is a framework for teaching that is based on natural ways of learning, customizable for all types of students and programs and, in addition, is fun for students. STEAM stands for "science and technology interpreted through engineering and the arts, all based in mathematical elements" which is "a contextual curriculum where the subjects are coordinated to co-support each other under a formal educational

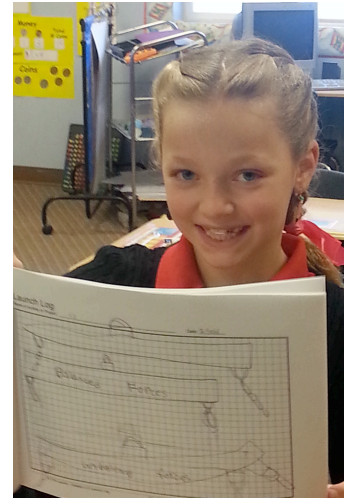


structure of how science, technology, engineering, mathematics and the broad spectrum of the arts, all relate to one another in reality" (Yakman, 2013). For the last few years, STEAM has been implemented in all K-12 schools in South Korea, University Place Elementary School in Tuscaloosa, AL, Wiley Middle School in Winston-Salem, NC, and Drew Charter School (K-8) in Atlanta, GA. Initial reports from schools report more engagement, deeper learning, higher educator job satisfaction, increased parent involvement and business partnerships.

2. Project based learning (PBL) yields a number of benefits to students ranging from deeper learning to stronger motivation to learn.

A project based instructional program with real-world context leads to deeper learning and provides motivation for student learning by providing opportunities for hands-on discovery, risk-taking and divergent (flexible) thinking. A literature review by the Buck Institute for Education (a not-for-profit organization committed to expanding the effective use of PBL) summarizes the many benefits of project-based learning in the areas of academic achievement, 21st century competencies, equity, motivation, and teacher satisfaction. A few of these results are listed below:

- Students learning through PBL retain content longer and have a deeper understanding of what they are learning. (Penuel & Means, 2000; Stepien, Gallagher & Workman, 1993)
- PBL shows promise as a strategy for closing the achievement gap by engaging lower-achieving students. (Boaler, 2002; Penuel & Means, 2000)
- In specific content areas, PBL has been shown to be more effective than traditional methods for teaching math, economics, language, science, and other disciplines. (Beckett & Miller, 2006; Boaler, 2002; Finkelstein et al., 2010; Greier et al., 2008; Mergendoller, Maxwell, & Bellisimo, 2006)
- On high-stakes tests, PBL students perform as well or better than traditionally taught students. (Parker et al., 2011)
- Students demonstrate better problem-solving skills in PBL than in more traditional classes and are able to apply what they learn to real-life situations. (Finkelstein et al., 2010)
- PBL can work in different types of schools, serving diverse learners. (Hixson, Ravitz, & Whisman, 2012)
- In PBL classrooms, students demonstrate improved attitudes toward learning. They exhibit more engagement, are more self-reliant, and have better attendance than in more traditional settings. (Thomas, 2000; Walker & Leary, 2009)



Project based learning is being implemented in many K-12 schools. Over 40,000 students in all 50 states are using Project Lead the Way, a STEM education curriculum, which is based on hands-on, project-based courses. Drew Charter School located in Atlanta supplements their STEAM curriculum with project-based learning. In 2013, they were awarded a \$1 million Race to the Top grant to support their efforts to deliver effective STEAM education through PBL.

RISA intends to implement Project Lead the Way's elementary science curriculum through the three art integration frameworks discussed previously. We will also use the resources and professional development offered by the Buck Institute for Education to develop our own STEAM project based learning curriculum. One block per day will be devoted to STEAM PBL so that students can work collaboratively to design, build, test and reflect on their innovations. We intend for STEAM-based project-based learning activities to be the *main course* at RISA, rather than simply an appetizer.

3. Successful STEAM professionals must be lifelong learners.

Nearly two decades ago the National Academy of Engineering held a workshop on Career-Long Education for Engineers to discuss some of the challenges facing engineers and how best to meet them. The workshop participants reached a broad consensus on the need for engineers to become "lifelong learners" in order to prevent their knowledge from becoming obsolete (Smerdon, 1996). This concern is still true today and will always be true as scientific and technical knowledge continues to advance. Future STEAM professionals must not think of education as what they do for 17 years from kindergarten to college but instead come to see it as a lifetime project.

At RISA, STEAM education through project-based learning will start in the earliest years when children's interests, desires, and abilities are formed. RISA will encourage students as early as possible, to love learning for the sake of learning, to never cease being inquisitive, to question the status quo, and to always push the boundaries of their own knowledge. One of our goals is to produce students who learn not solely to perform well on high-stakes testing, but also to love learning because it is an activity that can increase the productivity, happiness, and creativity in our community.

In addition to the implementation of fun and relevant STEAM project based learning curriculum, other strategies RISA will use to infuse the culture of lifelong learning into our school include:

- Displaying and discussing slogans that remind students of the importance of learning, such as *Learning is Forever* (L.I.F.E.).
- Displaying and discussing inspirational quotes only about the learning process, such as Lloyd Alexander's "We learn more by looking for the answer to a question and not finding it than we do from learning the answer itself."
- Celebrating the learning achievements of our students by recognizing a *Learner-of-the-Month*, a student who embodies the hard work, grit, inquisitiveness, and positive attitude it takes to become a great learner.

4. 21st century innovators and change makers require entrepreneurship skills.

One of our goals is to produce students that will grow into innovators like Steve Jobs. John Maeda, former president of the Rhode Island School of Design and STEAM education advocate, credits Jobs for bridging the Art-STEM divide so successfully:

"...The reason why the Macintosh was so successful was that it was created by artists, musicians, poets and zoologists. Jobs saw that artists and designers could make the technology emotional, desirable, human... On a grander scale, I thank Jobs and Apple for proving that art and design are poised to transform our economy in the 21st century, like science and technology did in the last century. It is this realization that will keep America competitive; the next Apple will be born if America invests in turning "STEM to STEAM" in its research and education" (Maeda, 2011).

Jobs' was entrepreneurial and his purposeful innovations changed the way we all live. RISA students are future innovators and change makers; they are future entrepreneurs. As such, all students should be given opportunities to develop this way of thinking, aptly described by Satish Nambisan, a professor at the Lumbar School of Business and College of Engineering at the University of Wisconsin-Milwaukee:

"...entrepreneurship is a way of thinking - an approach toward discovering and pursuing opportunities (solving problems) in ways not constrained by the present — that find application in diverse contexts and institutions (new and old; public and private). It emphasizes imagining new possibilities in the face of high uncertainty, committing oneself to putting valuable ideas into practice and finding a broader meaning in one's ideas and actions" (Nambisan, 2014).

Nambisan further argues that entrepreneurship thinking skills complement and enhance the STEAM disciplines by “emphasizing cross-pollination of ideas from different fields and finding patterns in seemingly unrelated problems and solutions.” RISA intends to foster this way of thinking in our students as early as possible. A few of the recommendations Nambisan makes that RISA can implement is using project-based learning, idea competitions, and summer enrichment camps in order for students to “experience entrepreneurship with different levels of complexity.” RISA will also seek out guidance from organizations such as the Network for Teaching Entrepreneurship and the Kauffman Foundation on how to help students develop an innovator’s mindset in the early grades.

5. Professional development opportunities for teachers and staff are crucial for exemplary instruction.

Teachers make a huge difference in student outcomes and if we want teachers who can successfully deliver the STEAM curriculum and close the achievement gap, we need teachers who both have the deep content knowledge and the expertise in teaching that content to all learners. RISA acknowledges that this will be difficult to fulfill. The National Research Council identifies low course-taking in science and math by elementary and middle school student-teachers as a major factor in poor teacher quality and poor student outcomes (2010).

There is some evidence that more time spent on in-depth study of science and mathematics may contribute to improved teacher quality and greater student learning. A major international study found a strong correlation between elementary teachers with a stronger background in math and student achievement. Elementary and secondary school student-teachers in high-achieving countries had more opportunities to learn tertiary level mathematics (geometry, continuity, functions) and school-level mathematics (functions, calculus, probability, statistics, structure) than elementary teachers in other countries (Tatto, M. T., & Senk, S., 2011). Older studies conducted in the United States also found a correlation between the number of math and science courses a teacher took in her teacher preparation program and student learning gains (Monk, D. H., 1994).

The weaknesses of teacher preparation programs particularly for the STEM and STEAM fields heighten the need for high-quality continuing education. Unfortunately, STEM professional development is “often short, fragmented, ineffective, and not designed to address the specific need of individual teachers” (Wilson, 2011). Much professional development is voluntary, in the form of conferences. Teachers wander from one workshop to another, rarely building on anything from session to session, or year to year. The most fundamental problem is that there is no way for a teacher to develop her knowledge of the content and pedagogical content knowledge (PCK) over time in increasingly sophisticated ways (Wilson, 2011).

The effectiveness of professional development programs has mixed results. Some studies report positive effects on achievement; others have shown no effect or negative effects. A study of 25 professional development programs for math and science teachers in 14 states showed positive student outcomes if three conditions were met: (1) the programs focused on content in mathematics and science, (2) the programs included on-site follow up in classrooms, and (3) the teacher-contact time reached at least 50 hours (Education Development Center, Inc, 2008).

In order to address the challenge that finding teachers with strong math and science backgrounds will be difficult, our strategy will be to find STEAM-agile teachers and develop them into STEAM-strong teachers. We will attempt to accomplish this by establishing a school-based professional learning community (PLC). For a school to be truly successful at meeting its goals, everyone must also work together. A professional learning community is a “group of educators, administrators, community members and other stake holders who collectively examine and improve their own professional practice” (Annenberg Institute for School Reform, 2004). Research shows that the development of a strong professional community among educators is crucial to improving schools (Fullan, 1999; Langer, 2000; Little and McLaughlin, 1993; Louis, Kruse, and Marks, 1996; Newmann and Associates, 1996.) It is important that all teachers have the opportunity to convene, discuss, think about, and work together to collectively improve instruction and their practice in ways that lead to high student achievement. Common planning time will be built into the staff schedule to ensure that all staff and educators have the time and opportunity to collaborate and work as a team to achieve the common goal.

According the Annenberg Institute for School Reform (2004), leaders play a key role in fostering the success of PLCs. RISA will have an in-house Curriculum and Professional Development (CPD) team, which will consist of at least two individuals, a STEM education expert and a Teaching Artist. Their responsibilities will

The Curriculum and Professional Development (CPD) team will be the leaders of RISA’s professional learning community.

be to research best practices for STEAM pedagogy, design STEAM project-based learning curriculum, provide training and mentorship to the teachers, bring in ideas about curriculum and instruction from outside sources, and along with the school principal enhance the professional culture of the school by being the leaders of the professional learning community. They will model active learning teaching methods, observe the teachers in action, provide feedback on how to improve their practice, as well as observe the lessons to improve the curriculum. At the same time, they must show respect for the ideas of the classroom teachers, and also empower the teachers as leaders. The CPD team will empower the school community by fostering a culture of supportive and shared leadership, as well as addressing the individual needs of the teachers by helping them develop deeply their content knowledge and pedagogical content knowledge over time. RISA intends to share the in-house CPD team with any interested RI public school districts. We will also seek out collaborations with faculty from local RI universities, such as the University of Rhode Island, Brown University, Rhode Island School of Design, and Rhode Island College to give talks or workshops pertaining to the newest educational innovations.

6. Academic success is contingent upon an iterative, reflective, engineering-based process to improve pedagogy.

STEAM education is still in its infancy. Research on how to best integrate art with STEM, develop and teach STEAM curricula, and how to use STEAM education to close the achievement gap is still lacking. Although early studies show promise in increasing motivation and learning gains, longitudinal studies are lacking. Exemplary STEAM pedagogy can only result if we treat RISA not just as a school, but also as an incubator for STEAM educational research. The framework from which we will design STEAM project-based learning curricula is design-based research.

Designed-based research (DBR) “blends empirical educational research with the theory-driven design of learning environments, is an important methodology for understanding how, when, and why educational innovations work in practice” (The Design-based Research Collective, 2002). DBR can “help create and extend knowledge about developing, enacting and sustaining innovative learning environments.” Unlike traditional education research in which the efficacy of educational innovations are tested with a control group and an intervention group, DBR focuses on designing and exploring a whole range of designed innovations, such as artifacts as well as institutions, activity structures, scaffolds, and curricula. DBR not only studies the education intervention, but everything in the environment as well. The DBR approach reflects a commitment to understanding the relationships among learning theory, designed artifacts, and practice. Finally, design-based research engages partnerships between the teachers/practitioners and the researchers, which can help uncover the many variables that come into play in a classroom and help refine the main components of an educational intervention. It is with this collaboration that we can produce successfully meaningful change in the classrooms.

The Design-based Research Collective (2002) propose five characteristics of good design-based research:

- First, the central goals of designing learning environments and developing theories or “prototheories” of learning are intertwined.
- Second, development and research take place through continuous cycles of design, enactment, analysis, and redesign.
- Third, research on designs must lead to sharable theories that help communicate relevant implications to practitioners and other educational designers.
- Fourth, research must account for how designs function in authentic settings. It must not only document success or failure but also focus on interactions that refine our understanding of the learning issues involved.
- Fifth, the development of such accounts relies on methods that can document and connect processes of enactment to outcomes of interest.

One example is the Living By Chemistry (LBC) project, a program of research to develop an innovative guided-inquiry high school chemistry curriculum. Over the course of 12+ years through continuous cycles of curriculum design, classroom observations, analysis and redesign, LBC is now a complete and successful curriculum being used in schools across the nation, including the Boston and San Diego school districts. One of the writers of this proposal, Karen Chang, was a graduate student researcher for the LBC project and understands firsthand how the design experiment process influences curriculum development.

Initially, RISA will use established STEM curriculum, such as Project Lead the Way and Full Option Science System, and find ways to merge arts and STEM to create transdisciplinary lessons and activities that accomplish the learning goals for both sets of disciplines. However, RISA is committed to being a center for STEAM education research and innovation. We will use the design experiment process to develop our own STEAM curriculum and observe it in action in order to develop a theory of what STEAM thinking and learning is and how it is different from that of pure STEM.

7. To ensure that students meet the highest global standards, data will be collected as part of the process to design an effective STEAM learning environment.

Our model of assessment is based on Design-based research where assessment is not just about tracking and measuring student learning gains, but about understanding how learning occurs and how to improve it. Typically, the classroom teacher is the only person who examines student work, checking for right or wrong answers to assess student-learning progress and to render that work into a representative numerical grade. However, at RISA the Curriculum and Professional Development Team will take a major role in analyzing the assessment artifacts not to determine a grade, but instead to determine: (a) what students are learning, (b) how they are learning it, (c) how the lesson/activity structure is promoting or impeding learning, and (d) how the lesson/activity can be modified to promote better learning. Because the CPD Team is largely responsible for the STEAM curriculum development, it is crucial that they are responsible for analyzing student artifacts to inform the revision of the curriculum to ensure that we are meeting the learning goals.

Classroom teachers will use continuous assessment in the forms of daily classwork, homework, projects, quizzes, student presentations, and classroom observations to inform us about each student's progress in meeting the learning goals as dictated by the Common Core Standards in Language Arts and Mathematics and Next Generation Science Standards. The CPD Team will analyze these artifacts in addition to using internally developed surveys and tests to measure the efficacy of the STEAM curriculum in meeting these learning goals and to inform the revision of the curriculum.

IV(b). Curriculum and Coursework

The core academic subjects for K-6 will be mathematics, English language arts, social studies, and STEAM. Although foreign language will not be emphasized at RISA, we recognize the importance of introducing children to different languages and will infuse some language instruction into the ELA block. We will also offer after school foreign language and ELL instruction for students as feasible and warranted.

Proposed daily student academic schedule at RISA

7:45 – 8:15	Before-school Individualized Instruction (need basis)
8:15 – 8:30	Assembly/Attendance
8:30 – 10:00	Mathematics Block*
10:00 – 12:00	English Language Arts and Social Studies (+ foreign language) Block*
12:00 – 12:30	Lunch
12:30 – 1:00	Individualized Instruction (need basis)/Physical Activity
1:00 – 4:00	STEAM (Science, Technology, Engineering, Math + ARTS) Block*
4:00 – 5:30	After-school Individualized Instruction (need basis) or Enrichment Programs such as foreign language instruction (optional)

(Breaks, play, music, or nap times will be included at teachers' discretion.)*

Because all grades up to grade six will have the same courses of study, a table outlining course offerings is not provided. Instead a proposed daily schedule is shown to provide a sense of how

our course of study is specific to the mission of RISA. Since RISA is committed to STEAM education and closing the achievement gap, three hours is devoted specifically to STEAM instruction and individualized instruction will be provided for low-achieving students before and after the formal school day, and during the lunch period.

RISA plans to purchase and implement high-quality, researched-based, nationally field-tested, standards driven academic curriculum with a track record of success to ensure that what our students learn meet the highest global standards. The following outlines our academic approach for grades K-6.

English Language Arts

RISA may use *Success for All* (SFA), which is a whole-school reform model developed at Johns Hopkins University in 1986, and includes a reading, writing, and oral development program, aligned with the Common Core State Standards, for students in pre-K to grade 6. SFA weaves five essential strategies to ensure the success of all students (Success for All, 2014):

- (1) Leadership for continuous improvement: School leaders and teachers collaborate to set goals, measure progress, and celebrate success.
- (2) Schoolwide support and intervention tools: Proven strategies focus on attendance, parental and family involvement, positive school culture, family needs, health issues, and individual student support and intervention to make sure that students are in school and ready to learn.
- (3) Powerful instruction: Engaged students and dynamic teaching are the keys to high achievement. Instruction in Success for All is built around cooperative learning to engage students in rich discussion and motivating challenges every day.
- (4) Professional Development and Coaching: Extensive job-embedded professional development and coaching enable teachers and school leaders to succeed.
- (5) Research: The effectiveness of Success for All has been proven in federally funded gold-standard research and in schools across the country for twenty-five years. The What Works Clearinghouse “considers the extent of evidence for *SFA*® to be medium to large for alphabetics, comprehension, and general reading achievement” (Institute of Education Sciences, 2014).

For students who are behind grade-level in literacy skills, RISA may additionally use *Reading Recovery*, a short-term intervention that provides one-on-one tutoring for low-achieving 1st graders, during before school and after school tutoring sessions, as well as during the summer sessions. The supplementary program aims to promote literacy skills and foster the development of reading and writing strategies by tailoring individualized lessons to each student. Tutoring is delivered by trained *Reading Recovery*® teachers in daily 30 minute pull-out sessions over the course of 12–20 weeks. The What Works Clearinghouse reports positive effects of Reading Recovery on alphabetics, reading fluency, and comprehension for beginning readers. According to the Reading Recovery Council, “since 1984 when Reading Recovery began in the United States, approximately 75% of students who complete the full 12- to 20-week intervention can meet grade-level expectations in reading and writing. Follow-up studies indicate that most

Reading Recovery students also do well on standardized tests and maintain their gains in later years” (Reading Recovery, 2014).

Mathematics

RISA may use *Investigations in Data, Number and Space*, which is an activity-based K-5 mathematics curriculum designed to help students better understand number and operations, geometry, data, measurement, and early algebra. *Investigations in Data, Number and Space* is a research-based, National Science Foundation funded curriculum developed over 20 years at Technical Education Research Centers (TERC) in Cambridge, MA. The What Works Clearinghouse considers the extent of evidence for *Investigations* on the math performance of elementary school students to be medium to large for mathematics achievement. In addition, the third edition of *Investigations*, for which classroom implementation will begin in Fall 2015, will align with the Common Core State Standards.

According to the WWC, the *Investigations in Number, Data, and Space* curriculum is organized into units within each grade: the kindergarten program contains seven instructional units, and grades 1–5 each have nine units. Each unit lasts from two to five-and-a-half weeks and is designed to be taught in sequence, building on one another. Kindergarten students receive 40–60 minutes of daily mathematics instruction, including 10–15 minutes spent on work that occurs outside of the math lesson—this additional work includes activities to practice and review key concepts that support the regular math work. Students in grades 1–5 receive 70–75 minutes of daily mathematics instruction, including 10–15 minutes spent on additional work. Sessions include one or more of four types of activities: (a) math activities, during which students engage in hands-on activities intended to improve math skills; (b) whole-class discussions, during which students compare methods, results, and conclusions; (c) math workshop, in which students work individually, in pairs, or small groups; and (d) assessments, during which students are assessed through either written activities or observations. Follow-up for each session may consist of homework using cards or the student handbook. Teachers may also send home letters that introduce families to the concepts in each unit and provide suggestions for related activities to try at home with their children.

Social Studies

Social studies at RISA will be combined with the English Language Arts block since both subjects can achieve the same learning goals and skill development. RISA may use the Teachers’ Curriculum Institute’s (TCI) elementary *Social Studies Alive!* Program. TCI’s social studies curriculum is online-based providing lesson plans, student handouts, other printable manipulatives and promotes student engagement with its interactive, engaging, collaborative curriculum. In addition, it is aligned with the English Language Arts Common Core State Standards.

TCI has been conducting research studies to determine the effectiveness of its curriculum on student learning gains since 2001 (Teachers’ Curriculum Institute, 2014). A study completed in 2002 at Sycamore Elementary School in Holt, Michigan (a primarily Title I school), showed impressive results on the 5th grade MEAP social studies test:

- More than 40% of Sycamore’s students were able to meet or exceed the Michigan Standards on the 2002 MEAP test for social studies, up from 20% the year before.
- Sycamore Elementary’s fifth graders did better than any other school in the district on the MEAP social studies test.
- Sycamore Elementary’s fifth graders outperformed fifth graders throughout the state, only of which 22.4% met or exceeded state standards.

These promising results lead to the entire Holt Public School district to adopt the program in 2004 at the elementary, middle school and high school levels. In 2005, 45 California school districts with over 4,000 students adopted TCI’s middle school history program. Analysis of the Grade 8 California Standards Test for History-Social Science showed that districts that adopted the TCI program:

- had an average of 50% of their students score in the advanced and proficient levels in 2010.
- have shown increases in the percent of students scoring at the advanced and proficient level in every year since the adoption.
- have test results that are higher than the state-wide average year after year.

Foreign Language

Rhode Island is one of five states pursuing the benefits of early foreign language training through “Dual Language Immersion: The Rhode Island Roadmap to Language Excellence,” we look forward to building coalitions with other Rhode Island groups.

RISA will be introducing foreign languages to young learners by infusing Spanish language instruction into the ELA/Social Studies block for two or three days a week for about 30 minutes each. We will also be soliciting Spanish-speaking parent volunteers to help classroom teachers provide the instruction. We also plan to offer foreign language instruction as an option in our after-school enrichment program.

STEAM

Providing students with quality STEAM education is one of the major missions of RISA, which is evident in that a significant part of the school day (three hours) is a STEAM instruction block. We believe that students need significant amounts of time to explore, ask questions, experiment, debate with their peers, make mistakes, revise, analyze, cogitate; but also just as importantly, to play and simply have fun with the activities. Students learn most when they are engaged and when learning is fun. Scientists, engineers, artists, and designers do their best work when they are allowed the time and freedom to “get messy” with



their work and we believe it is important to provide our students with the same kind of authentic environment that fosters creation and innovation.

In the long-term, RISA is committed to developing and providing students with innovative and effective STEAM education. In our view, simply requiring a combination of isolated classes in science, math, technology and arts do not fulfill what STEAM education is really about: deep-level integration of STEM with the arts to form a new course of study that requires students to develop a form of critical thinking and problem solving different than what they would learn from traditional STEM classes alone. RISA acknowledges that developing a genuine STEAM curriculum will be no trivial endeavor. It will take many years of collaboration among the teachers and the Curriculum and Professional Development team undergoing an iterative, experimental cycle of curriculum development before we become a truly effective STEAM academy. The STEAM curriculum we aim to develop is ambitious, and can only be accomplished with time and commitment.

Our initial step into achieving this long-term goal is to integrate art into high-quality, researched-based, nationally field-tested, standards-driven curriculum programs with a track record of success. We believe using previously developed curriculum programs is advantageous because: (a) we can be confident that our students will achieve learning goals since prior research has proven that these curriculum programs work, and (b) infusing art into the curriculum can only add to the effectiveness and is unlikely to have negative effects.

RISA may use the following two science and engineering curriculum programs so that students get comprehensive science, engineering and technology instruction:

- *Full Option Science System (FOSS)*: FOSS is a complete K-8 curriculum developed over 25+ years by the Lawrence Hall of Science, University of California Berkeley under three separate National Science Foundation grants. The FOSS Program bridges research and practice by providing tools and strategies to engage students and teachers in enduring experiences that lead to deeper understanding of the natural and designed worlds. FOSS K-6 covers topics in life science, earth science, and physical science (physics and chemistry). It is a non-textbook based curriculum that uses inquiry-based learning, active investigation, and collaborative learning, and research. Each K-6 module consists of a kit of student materials, a teacher guide, and a student reading book. In addition, the 3rd edition of FOSS is aligned with the Next Generation Science Standards. FOSS is currently being used in hundreds of school districts across the United States, and is part of the East Bay Educational Collaborative's Kits in Teaching Elementary Science (KITES) program.
- *Project Lead the Way (PLTW)*: PLTW is a leading provider of STEM programs. Currently, they are launching the K-5 elementary program, which is focused on engineering and physics. PLTW is a project-based curriculum "which gives students a chance to apply what they know, identify a problem, find unique solutions, and lead their own learning, rather than be passive recipients of information in a question-and-answer, right-or-wrong learning environment" (Project Lead the Way, 2014). The development of their curriculum is research-based and field-tested, following Wiggins and McTighe's approach, Understanding by Design® to develop a cohesive and coherent instructional path for

students. PLTW courses are aligned with the Common Core Standards in Math and English language arts, and the Next Generation Science Standards.

Developing innovative STEAM curriculum of our own is a difficult task that requires time, deliberation and research. However, our more immediate goal is to ensure that all students are getting quality instruction and to close the performance gap. Thus, our plan for successfully achieving both of these goals is to modify lessons from high-quality and highly successful curriculum programs by infusing art and the design process into these lessons. Over time, as our understanding grows about how art can be integrated deeply into traditional STEM instruction, we can then branch off from FOSS and PLTW to develop an innovative and genuine STEAM curriculum.

RISA is serious about becoming a center for innovative STEAM curriculum development and research. Many schools and programs are claiming that they are “doing” STEAM, when in fact they are not. From our view, we see two problems with the ways that art is currently being “integrated” with STEM. The first problem is the “service” approach to STEAM, in which art is used in service to the STEM disciplines rather than held in equal footing. In other words, art is used to summarize the science or math concepts with a student-created visually appealing artifact, but no art competencies or habits of mind are being addressed. The second problem is the “silo” approach to STEAM. For example, Portsmouth High School in Portsmouth, RI will be offering a STEAM certificate to students who complete a set number of classes in math, science, technology and art, in addition to a senior STEAM Project that is supposed to bring together all the disciplines. The issue with this approach is that the classes are taken in isolation from one another and there is little opportunity for integration, except for the senior project, which in our view is insufficient. The STEAM education movement is new and there is little consensus on what STEAM education really is and how it is different than STEM education. RISA sees the need for establishing a set of standards for what a STEAM program should entail and we are committed to being a voice and leader in that conversation.

RISA will help
drive STEAM
standards

We have already begun collaborating with the members of the Rhode Island School of Design to develop exemplars of what truly integrated STEAM lessons or activities would look like. We believe a set of tenets should be established that clearly differentiate how STEAM education is unique and different from STEM. This framework can then influence the curriculum design. Appendix A is a description of a full 8-week unit for a 1st grade classroom about the life cycle of plants, that not only targets NGSS and Common Core Math standards, but also incorporates STEAM activities in an integrated, transdisciplinary manner so that both science and art learning targets are met. This unit was developed in collaboration with Melita Morales, a Masters of Art + Design Education graduate student at RISD. We would like to acknowledge that this unit description is merely the *beginning* of a research program for the development of a truly integrated STEAM curriculum and is by no means what we consider to be a finished product.

IV(c). Learning Environment and Pedagogy

RISA will aim to populate each class with 18 to 24 students. Students will work in teams of four or five and student desks will be situated in pods, rather than individual desks in rows. The reason for the pod-structure of the classroom is because cooperative learning will be required for all coursework.

RISA is committed to closing the performance gap. A May 2012 study by The Century Foundation in conjunction with the Poverty and Race Research Action Council found that integrated schools are more likely to foster student achievement, social development, and future employment. RISA intends to be a socioeconomically and racially integrated charter school, like Blackstone Valley Prep. We expect at least half of our students to be FRPL-eligible.

We realize that our target community is diverse and will have different needs. Thus, the instructional methods we choose to implement must be accessible and appropriate for all students at all levels. As discussed in Section IV(b), RISA is choosing to purchase and implement a high-quality, research-based curriculum with a track record of success at all levels. For ELA, we may use *Success for All* (SFA); for math, we may use *Investigations in Number, Data, and Space* (Investigations); for social studies, we may use *TCI's Social Studies Alive!*; and for STEAM we may use *Full Option Science System* (FOSS) and *Project Lead the Way* (PLTW).

The reason we may choose these curricular programs is because of the commonalities in their instructional design, which align with what RISA believes to be effective pedagogy for all students at all levels. The commonalities in instructional methods include:

a) Constructivist approach through inquiry-based or project-based learning

RISA students will not be sitting passively at their desks listening to the “sage on the stage.” We believe in the constructivist approach to learning where students take ownership of their learning and are guided to develop their own learning of the content. Two ways that the constructivist approach can take form in educational design is inquiry-based and project-based learning. Inquiry learning involves developing questions, making observations, doing research to find out what information is already recorded, developing methods for experiments, collecting, analyzing, and interpreting data, outlining possible explanations and creating predictions for future study. Project-based learning includes much of the same components as inquiry-based learning, but takes it a step further by directing students to create an artifact to present their knowledge. Artifacts may include a variety of media, such as writings, art, drawings, three-dimensional representations, videos, photography, or technology-based presentations. *Investigations*, *Social Studies Alive!*, *FOSS* and *PLTW* all take the constructivist approach in their curriculum design. An abundance of research studies have shown the many benefits of project-based learning, which has already been summarized in Section IV(a), Guiding Principles. There is also much evidence for the role that hands-on, inquiry-based instruction has on student learning gains compared to traditional instruction (Escalada and Zollman, 1997; Freedman, 1997; Morrell and Lederman, 1998; Okebukola, 1987; Parker, 2000; Shymansky, 1989; Symansky et al., 1982a, b, 1990.)

b) *Cooperative Learning*

RISA students will interact in pairs, small groups, as a whole class, and with the use of video conferencing possibly even with other classrooms in schools across the country, so that they are not just learning from the teacher, but they are learning from their peers and thereby more engaged in learning. Rather than learning individually, which can be competitive in nature, cooperative learning is structured to promote positive interdependence. Students work in groups to complete tasks collectively towards academic goals. Students learning cooperatively capitalize on one another's strengths and skills, so that the teacher's role changes from giver of information to facilitator of student learning. Successful cooperative learning tasks that are engaging for all learners are intellectually demanding, creative, open-ended, and involve higher order thinking tasks (Ross and Smyth, 1995). *Success for All*, *Investigations in Number, Data, and Space*, *TCI's Social Studies Alive!*, *Full Option Science System* (FOSS) and *Project Lead the Way* (PLTW) all implement some cooperative learning in their curriculum. There is a great volume of evidence indicating the positive effects that cooperative learning has on student achievement and retention, as well as higher-level reasoning, more frequent generation of new ideas and solutions, and greater transfer of what is learned within one situation to another, compared to traditional individual-based learning practice (Nichols, 1996; Johnson, et al., 1993; Slavin, 1983; Slavin, 2011; Steinbrink and Jones, 1993; Whicker, et al., 1997).

c) *Scripted kit-based curriculum rather than non-scripted textbook-based curriculum*

All of the curricula that RISA may use are scripted kit-based curriculum programs rather than textbook-based with which teachers have more autonomy in their lesson design. Scripted curriculum programs are controversial. Many experienced teachers bristle against the current trend towards scripted curricula. Critics of scripted curricula argue that teachers are being turned into robots rather than creative professionals and that teachers need the opportunity to take ownership of their teaching if they are to become effective educators.

However, RISA believes in the power and efficacy of scripted curriculum programs, which undergo a recursive cycle of research, field-testing, assessment and revision over many years by science education researchers, curriculum developers, and teachers. We disagree with the opinion that a trained monkey can use a scripted curriculum successfully. A 2005 study conducted by Betty J. Young (a professor of education at the University of Rhode Island) and Sharon K. Lee (the Director of Multiple Pathways at the Rhode Island Department of Education) compared the effect of a scripted kit-based science curriculum versus non-scripted nonkit-based science curriculum. They compared the effect resulting from kit-based science instruction with intensive professional development (PD) has on student achievement compared to the effect resulting from nonkit-based science instruction without systematic PD for teachers. The kit-based group was also split into two subgroups – high number of PD hours versus low number of PD hours. They found that “while there were no significant differences in the mean total scores for kit-based students with low PD versus high PD teachers, the kit-based classrooms scored significantly higher than students in nonkit classrooms on both the pretest and posttest, though there were significantly more minutes of science instruction in the nonkit classrooms” (Young and Lee, 2005).

d) *Frequent Embedded Assessment*

All of the curriculum programs that RISA may use contain frequent and embedded assessment in order to chart student progress (formative assessment) and ensure that all students are achieving learning goals (summative assessment).

Success for All (the ELA program) incorporates formal and informal assessment across the weekly cycle of instruction. Formal assessments occur at the end of each cycle, whereas informal assessments take place on a daily basis through the daily products that students or teams complete, and during the wrap up discussions at the end of a class period.

TCI's Social Studies Alive! program supports formative assessment by providing observational checklists for each lesson that allows teachers to monitor the progress of even the youngest learners.

Investigations (the math program) offers many opportunities for assessment within the sessions of every unit. These include: (i) Advice for teachers on what to observe in students that indicate student understanding or confusion; (ii) Teacher checkpoints, which are sections within units that offer a time to pause in the teaching sequence to get a sense of how the class and individual students are doing with the content; and (iii) Assessment activities that are embedded near the end of each unit to help the teacher examine specific pieces of student work, figure out what it means, and provide feedback. These activities often have Teacher Notes associated with them that discuss the problem, provide support in analyzing student work and responses, and offer guidance about next steps for the range of students in a class.

The *FOSS* (the science/STEAM program) Assessment System consists of both formative and summative systems developed at the Lawrence Hall of Science to help teachers and students monitor students' progress and measure students' abilities to apply the concepts they have learned. The formative assessment system (FAST) is a technology-based system that helps teachers collect classroom observational data, improves elementary teachers' analysis of written student work, and provides diagnostic suggestions to increase students' understanding of science concepts and processes. The *FOSS* summative assessment system was developed under the Assessing Science Knowledge (ASK) project, which was designed to define, field test, and validate effective assessment tools and techniques to be used by grade 3–6 classroom teachers to assess, guide, and confirm student learning in science.

PLTW (the engineering/STEAM program) takes a student centered balanced approach, in which assessment is an ongoing activity. Students demonstrate their knowledge throughout the course by completing activities, projects and problems using a variety of assessment tools, such as performance rubrics and reflective questioning to deepen and expand their knowledge and skills.

In addition to the instructional practices that RISA believes are self evident at making the above curriculum programs strong, we believe the following are also necessary for an effective learning environment:

e) *Technology-embedded instruction*

All of the curriculum programs we plan to use incorporate technology into the instruction through a variety of ways, including student research projects, animations and simulations, learning activities and games. However, we will supplement technological use in other ways, such as having students use programs like Powerpoint and Prezi to create presentations that demonstrate and communicate their knowledge. An early programming education will be facilitated with the use of Scratch, which is a programming language with an online community where students can create project-based learning artifacts such as interactive stories, games and animations. We will also encourage the use of web-based software like Google Docs to support cooperative learning and data sharing among teachers, students, parents and the community.

f) *Deliberate Goal-Directed Practice*

RISA believes in inquiry and project-based learning in which students take ownership of their learning and are guided to develop their own approach to learn the content. Inquiry and project-based curriculum programs are very engaging and can motivate students. But these programs don't always include enough practice time, crucially needed in order to reinforce basic knowledge about which national and state standardized assessments hold the learner to account. Although students typically don't find practice exercises enjoyable, we acknowledge the power of practice activities to solidify content knowledge and skills into students' minds. Glover, Ronning and Bruning (1990) report that when students practice solving problems they increase their ability to transfer practiced skills to new and more complex situations. The cognitive gains that students experience from practice often bring about motivation for more learning (Kalchman, Moss and Case, 2001). Research has shown that practice in the form of computer or web-based competitive games encourage students to be more willing to practice and lead to academic achievement (Bahr and Rieth, 1989; Ozdener and Celen, 2009). RISA will make sure to balance inquiry, and project-based learning with appropriate amounts of time for deliberate goal-directed practice.

IV(d). Specific Populations

RISA will be prepared to enroll and serve all students, including struggling students, gifted students, students with disabilities, students learning English, and students with other diverse learning needs.

(1) and (4): Struggling, and Gifted/Advanced Students

We expect the student body at RISA to be diverse in ability levels, particularly in mathematics and literacy. Some students will be struggling and exhibiting below-grade level competencies, while other students will be excelling and exhibiting above-grade level competencies. In order to provide the most individualized, differentiated instruction to address the varying levels of ability and achievement, RISA will implement dynamic ability grouping within each classroom. We realize that the use of ability grouping is contentious, with many people arguing that there is no evidence that it leads to higher achievement; and if it does, it occurs with the high tracked group, which leads to an increase in inequality and a widening performance gap.

Perhaps the most comprehensive and careful reviews of research on ability grouping are Robert Slavin's reports of grouping and achievement in elementary (1987) and secondary (1990) schools. Slavin reported the following: (1) Ability grouping has no effects on either productivity or inequality, and (2) Grouped and ungrouped schools produce about the same level of achievement, and neither high, nor low, nor average groups obtain any special benefit or suffer a particular loss due to grouping. Slavin reached these conclusions after examining a diverse array of studies conducted over a 60-year period. While some of the studies showed positive effects for productivity and inequality, others yielded negative results as a result of ability grouping. Because the results averaged out to about zero, Slavin concluded that ability grouping has no effects and that the effects that appeared in many studies resulted from random or systematic errors of measurement (Slavin 1990).

However, Slavin did find one silver-lining in his study: Some forms of subject-specific grouping—particularly within-class grouping for math and cross-grade grouping for reading—tend to have positive effects on overall achievement. This led him to conclude that “ability grouping is maximally effective when done for only one or two subjects, with students remaining in heterogeneous classes most of the day; when it greatly reduces student heterogeneity in a specific skill; when group assignments are frequently reassessed; and when teachers vary the level and pace of instruction according to students’ needs.” (Slavin, 1987). In other words, ability grouping can work to improve achievement if the teachers use it to provide different instruction to different groups for specific subjects that exhibit great heterogeneity, and allow flexibility for students to switch groups (either move up or down) if they show progress or difficulty.

RISA will implement ability grouping for literacy and math, while the STEAM block will utilize heterogeneous groups. Students’ abilities will be identified by the teacher after about five or six weeks of assessing and observing students in the classroom, before shifting them into ability groups of six or seven students. It is important to group students after observing them in the classroom and after several assessments because we do not want to “box” a child into an ability group solely based on one paper-and-pencil test. Each class will have three groups each for literacy and math: a Foundation group, an Intermediate group, and an Advanced group. This means that a child may be assigned to a Foundation literacy group, but placed in an Advanced math group. Teachers will use a reading assessment at least three times a year and a math assessment before each unit to ensure that students do not remain in groups that are too advanced or too slow for them. The assessments that we may use are summarized in the next section, IV(e).

In order to provide differentiated instruction to each ability group, the teachers can teach the same lesson to the entire class, but give each group a different assignment. A good example of this is described in a New York Times article (Yee, 2013): A lesson may consist of learning a new set of vocabulary words. All three groups will be asked to draw illustrations and write captions using the assigned words, but the Advanced group may be asked to write more complex sentences using two new vocabulary words in the same sentence. The students in the Advanced group may also be asked to peer-teach students in the other groups. All students are learning the same content, but with different levels of complexity and nuance. The use of ability groups also allows teachers to provide specific, targeted instruction for students depending on their needs. Since students with the same abilities often have the same needs, it is a much more effective use

of the teacher's time if she can rotate from group to group and provide the same kind of instruction to similar ability students.

(2): Students learning English

The RISA founding group will respect all federal and state laws and regulations that govern standards and services for ELL students. Our faculty and staff will comply with R.I.G.L. 16-54-1, et seq.; Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and the Equal Education Opportunities Act of 1974 See: 20 U.S.C. 1703 (f)). RISA faculty will be made aware of all supporting documents and guidelines noted in RIDE's: "Rhode Island Regulations Governing the Education of English Language Learners"

A Home Language Survey will be conducted once an enrolled potential ELL student is identified by their family, and by a member of RISA's screener/assessment team. If the Home Language Survey indicates that a student's home/native language is not English, a background interview with the student, and family shall take place. Proper notification tools (in the family's native language) will be employed, and whenever possible, if the family so wishes, a bi-lingual family member or friend will be invited to participate. Based on the findings of this interview, the student will be given a screening assessment. The WIDA-ACCESS PLACEMENT TEST (W-APT) will be employed to measure the student's ability to understand, speak, and read English at a level appropriate to the student's age and grade placement.

Research shows that 80 percent of the referrals to special education are generated from teachers' concerns over reading problems (Snow, Burns, and Griffin.1998). Previous research indicated an over-representation of English language learners in special education classes (Yates & Ortiz, 1998). There is often an overlap in the types of errors made by ELL students and students with learning disabilities (Nuder, 2003). However, normal syntactic errors for ELL students, in English, differ from the errors made by ELL/Language Disabled students in their native language.

RISA faculty will work in collaboration among special education and Limited English Proficiency (LEP) service providers, family, community members, and other stakeholders to ensure proper evaluations are employed in order to guard against over or under-identifying ELLs.

Factors critical to the success of English language learners (Ortiz & Wilkinson, 1997) include: early intervention; differentiated instruction; and curriculum-based assessments to monitor student progress and data from assessments to plan and modify instruction as needed. By being involved with the families and communities of English language learners, educators come to understand the social, linguistic, and cultural contexts in which their students are raised (Anderson & Pellicer, 1998; Garcia, this volume; Garcia & Dominguez, 1997; Ortiz, 1997).

The Two-way/dual language method of instruction will be employed at RISA. In *Next Generation Charter Schools - Meeting the Needs of Latinos and English Language Learners*, The International Charter School (ICS) in Pawtucket was highlighted along with four other national charters. The RISA team intends to follow ICS's great gains (Lazarin and Ortiz-Licon,

2010). Like ICS, RISA will offer parenting classes to strengthen the relationship between students and parents at home and at school. ESL classes will also be offered to parents and are open to the public free of charge. Community partners will be brought in to assist in these inclusive efforts. Two-way bilingual programs teach students who are learning English alongside students who are native English-speakers who are learning the target language. Charter schools are a viable and important educational option for the growing number of school-aged ELLs (Clair, 2014). RISA teachers must meet appropriate state certification requirements and be highly qualified as defined by RIDE in their content area.

Multilingual educational software like Pearson's, *Cornerstone* and *Our Discovery Island* will be available to ELLs to use individually, in peer groupings, and at home. Resources will be made available to those families in need of technological assistance through grants and community supporters.

RISA administration will actively pursue hiring dual certified educators, and seek to recruit Spanish speaking faculty and staff. Classroom teachers will offer a rich educational setting, sensitive to cultural differences and embrace students' unique heritage by inviting them to share special traditions and customs with fellow classmates. Collaboration among special education and Limited English Proficiency (LEP) service providers, family, community members, and other stakeholders will together enhance and expedite the ELL students' confidence and mastery of English.

Newport County will continue to draw immigrant families looking for employment in the service industries. Demand for low-skilled workers in the burgeoning hospitality, marine, construction, landscaping, health and childcare businesses clearly demonstrate the need for RISA to be prepared to serve LEP families.

RISA's caring and involved educators will strive to understand the social, linguistic, and cultural contexts in which their students are raised. Working with area Hispanic churches, business and cultural organization partners, RISA will embrace diversity and work to gain a better understanding of all multicultural populations in order to insure success in mainstream education procedures. Jean Snell, clinical professor of teacher education at the University of Maryland, believes cultural diversity enhances the school experience, too. "There is a richness that comes from students working side by side with others who are not of the same cookie-cutter mold," she notes.

(3): Students with Disabilities

The RISA founding group will respect and comply with all federal and state laws and regulations that govern standards and services for our students with disabilities as outlined in RIDE's 2013 *Regulations Governing The Education of Children with Disabilities*. RISA will follow all dictates and regulations established pursuant to Title 16, Chapter 24 of the General Laws of Rhode Island and by the Federal IDEA, 2004 (20 U.S.C. Chapter 33, 1400 et. seq.) The Individuals with Disabilities Act is a federal law which guarantees children with disabilities a right to a free, appropriate public education. The Rhode Island Regulations further outlines specific criteria for identifying the existence of a disabling condition. Special Education is specially designed instruction to help these children succeed in school.

Consistent with the mandates included in IDEA 2004, a comprehensive evaluation will include a variety of assessment tools and strategies to gather relevant functional, developmental, and academic information about the child in addition to observation of the student in the learning environment, all performed with consent and involvement of the child's parent or guardian. Evidence of a pattern of strengths and weaknesses determine the diagnosis of disabilities and, if appropriate, will guide the development of the child's instructional program that involves the general education teacher and special education teacher.

The founding group has met with Rachel Santa, Director, of the Newport County Regional Special Education Program (NCRSEP) with the goal of collaborating and sharing services to ensure that RISA students with exceptionalities receive the best available support and intervention. Currently, NCRSEP provides services for all but two (Newport and Jamestown) Newport County districts. Not knowing the extent to which special services will be needed, we feel that a partnership with an established provider is the most comprehensive and fiscally prudent approach. The RISA team will work closely with NCRSEP, our faculty, the student and family to meet the federal and state mandates for special education services, including assessment and the Individualized Education Program (IEP) design, goal-setting, implementation, and re-evaluation. NCRSEP provides regular professional development to include: Restraint Regulations; Co-teaching; Differentiated Instruction; Autism/Picture Exchange Communication System; Extended School Year (ESY); IEP development; Positive Behavioral Intervention Supports; and Summary of Performance.

STEAM's integrated, project-based approach “grabs” the student with special needs. Research on the impact of project-based approaches on both achievement and affective dimensions such as attitude, engagement, and motivation is quite positive overall (Thomas, 2000). RISA's students with learning difficulties will benefit from daily inclusive hands-on STEAM-focused activities. STEAM is a whole-learner, community-involved and influenced learning environment. It has living curriculum structure that is representative of the surrounding culture and aware and tolerant of all types of diversity (abilities), perspectives, and changes (Yakman, 2013).

Parents and families are the most valuable advocates for success as learners for their disabled daughter or son. By building a strong bond between home and school, bolstered by our culture of open and ongoing communication, RISA students will achieve their full potential. Families will be introduced to Rhode Island Parent Information Network (RIPIN) resources, including Starting POINTS for Parents. Families in need will be provided access to technology and assisted with transportation needs.

The Head of School, in concert with the classroom teacher and resource team, will continually evaluate the special education program and bring on board innovative research-based practices as they arise.

IV(e). Assessment System

RISA will use an integrated and comprehensive assessment system to determine if our students as a whole, a cohort, and individually are meeting academic goals, and to determine what needs to be re-taught. Since our approach to instruction is student centered, inquiry, and project based,

the assessment and evaluation of each student will be a continuous and ongoing process. RISA will use a combination of standardized assessments (Table 4-1), informal assessments based on observations, homework, classwork, and student projects to collect data on how each student is performing.

Through the analysis of the data our teaching staff will identify areas of student weakness and strength to determine how they can help students improve and how to challenge them. Because the goal is to continually improve student outcomes, data collection and analysis will occur regularly in order to establish individualized goals and plans to help students stay on track.

Table 4-1 summarizes the types of standardized assessments that we will use, organized by subject and grade-level. The assessments shaded in gray are not required by RIDE and are additional assessments that RISA may plan to administer. We believe it is important to track student progress in mathematics as early as possible, rather than starting in the 3rd grade. We may use the *Measures of Academic Progress (MAP) for Primary Grades* to diagnose students and assess student progress starting from Kindergarten. We also plan to assess student progress in science. However, there currently aren't any commercially available high-quality assessment tools in science for early K-3 learners. ACT Aspire may be a possibility, but if it is not appropriate for RISA, we may develop our own science assessments for K-3 students. The goals from using these assessments have already been addressed in Part III of this proposal.

Table 4-1: Standardized Assessment Tools

Subjects Tested	Accountability Grades	Assessment
Mathematics	K, 1, 2	MAP for Primary Grades developed by Northwest Evaluation Association (aligned with CCSS)
	3, 4, 5, 6	Partnership for Assessment of Readiness for College and Careers (PARCC)
	4	National Assessment of Educational Progress (NAEP)
	2, 3, 4, 5, 6	RI Alternative Assessment (for a small number of students)
English Language Arts Literacy Reading	K, 1, 2	Development Reading Assessment (DRA)
	3, 4, 5, 6	Partnership for Assessment of Readiness for College and Careers (PARCC)
	4	National Assessment of Education Progress (NAEP)
	2, 3, 4, 5, 6 4 (for Writing)	RI Alternative Assessment (for a small number of students)
Science	3, 5, 6	ACT Aspire or school-developed assessment
	4	New England Common Assessment Program (NECAP) aligned with RI Science GSEs
	TBA	Assessment aligned with NGSS
	4	RI Alternative Assessment (for a small number of students)
English Language Learners	Annually	Access for ELLs

In addition to assessing individual student progress, results from all standardized assessments will be reported to the Board of Directors. The Board will analyze the data, provide feedback and work together with the school leaders to determine where RISA's academic program is an educational success, where it is lacking, and how to improve the program. The Curriculum and Professional Development Team along with the teaching staff will also be involved in the data analysis to determine if the chosen curriculum is working for grades as a whole, what topics require more instructional time, and how the teaching staff can improve instruction. School leadership will use the results to evaluate teacher effectiveness to target teachers who may need more professional development and support. It is through this recursive cycle of collecting data, reporting, analyzing, providing feedback, and making adjustments that RISA can be successful at meeting its goals.

Because RISA is devoted to STEAM education, we also plan to assess student progress in STEAM. Since so much of the STEAM curriculum is project-based, assessment in our early years will most likely be based on the various projects, presentations, and demonstrations that students will complete throughout the year. However, in the future, through research and curriculum development, as our understanding of how STEAM education differs from STEM education grows, we will be able to develop our own internal and reliable STEAM assessment systems.

IV(f). Promotion and Graduation Policy

RISA is committed to ensuring that all students reach grade-level proficiency in mathematics and ELA as dictated by the Common Core Standards before being promoted to the next grade level. We will do all that is possible to help students overcome their deficiencies through extra instruction (before and after school) during the school year as well as during the summer sessions. If students are not able to develop competencies that reach the minimum standard, they will not be promoted and have to repeat that grade. Near the end of the academic year, parents will be informed of the school's decision to promote their children through grade reports and letters mailed to the families' homes. If a student is under consideration to be held back, the head of school will contact the parents via phone call or email for a one-on-one meeting to discuss how the parents and RISA can work together over the summer to provide the most effective remediation so that the child can meet minimum standards to enter the next grade.

IV(g). School Culture

The founding group, most of whom will be serving as directors, continue to study the cultures of high performing charter schools of KIPP (Tuttle et al, 2010), Blackstone Valley Prep, and Harlem Village Academies. Starting from scratch is a tremendous opportunity. The RISA founding team is fully aware of the importance and magnitude of chartering an ideology that will pervade every aspect of the collective daily experience. Faced with this formidable challenge of getting the ethos right from the start, we endeavor to establish a set of routines, expectations, and procedures essential to mission success.

School culture constitutes the shared beliefs, attitudes, traditions, and values that together define the institution's intrinsic character. School climate characterizes whether (or not) students,

faculty and staff entering the Academy, for the first time or every school or work day, “feel” welcomed and safe, immediately knowing that they are in a purposeful, supportive learning community.

In an age of transformation, instilling exceptional behavioral habits early is crucial. The founding group understands that a positive culture positions students to excel in their academic careers and as contributing members of society. RISA's culture must be supplemented with unique dimensions specific to our STEAM-centric curriculum. Inquiry; deep-thinking; reflection; oral presentation; collaboration; critical thinking; communication; and creativity will be emphasized daily. The last “4Cs” listed, a term coined by the Partnership for 21st Century Skills, are key to teaching the adaptive, resilient, and readiness skills, so needed in our constantly changing world.

The National School Climate Council explains school climate is based on patterns of students', parents' and school personnel's experience of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures. All members of the RISA school staff will model an attitude that emphasizes the benefits and satisfaction gained from learning. This shared vision of quality and character will be reinforced daily within the entire community.

Mottos and daily affirmations, important to cultivating camaraderie, will be displayed and recited throughout the Academy. To energize and sustain both a positive school culture and an uplifting school climate, teachers will be encouraged to frequently use prompts like: “What are we?” with the expected response: “We are STEAM-POWERED” and “We succeeded because...?” students respond: “The RISA team CAN-DO!”

P	O	W	E	R	E	D
Passionate	Optimistic	Wonderful	Explorers	Respectful	Empathetic	Determined

We are also studying the culture of a unique Newport educational institution, the Naval Academy Preparatory School which employs two of our directors, and has graduated a long list of students who have excelled at the U.S. Naval Academy and later had distinguished military and civilian careers.

RISA prizes the mental and emotional dispositions characterized by Ted Sizer as “habits of mind and heart.” RISA aspires to affiliate with The Coalition of Essential Schools (CES), as their "Common Principles" align with our focus of helping young people learn the thinking and emotional dispositions necessary for success in the classroom and beyond.

As RISA intends to have an integrated student population with 50+ % of our students coming from free or reduced price lunch program (FRPL) homes, we know that establishing a culture and climate rich in routine and common practices is vital. In *How Children Succeed*, Paul Tough says it best “...the biggest obstacles to academic success that poor children, especially very poor children, often face: a home and a community that create high levels of stress, and the absence of a secure relationship with a caregiver that would allow a child to manage that stress.” Knowing that perhaps the most troubling dilemma faced in traditional school settings today is the disruptive behavior exhibited by children who have not been prepared to learn, we seek to provide a high-quality school climate that is advantageous for all students and may be

particularly beneficial for at-risk students (Loukas, 2007). We are prepared to meet the challenge bestowed upon us as a new and innovative charter school, we will work hard to recalibrate current developmental trends and become a beacon of hope and effectuation for all area public schools to emulate.

Measured success of school culture and climate exists when students believe that adults in the school care about them, have high expectations for their education, and will provide the support essential to their success. Students thrive in such environments. When teachers and staff are deeply engaged in creating a safe, nurturing, challenging school environment, their job satisfaction increases (Blum, 2005).

RISA's founding group appreciates the opportunity to mold patterns of acceptable conduct starting with the youngest learners and their families. Research found in the *Family Engagement, Diverse Families, and Early Childhood Education Programs: An Integrated Review of the Literature*, National Association for the Education of Young Children, (Halgunseth Peterson, Stark, Moodie, 2009) is extremely helpful. Establishing behavioral norms early on in the students' academic career, along with maintaining a productive, trusting, open relationship with the child's family and community, will set the course for future success.

We are researching two behavior management plans. Thompson Middle School in Newport uses The Positive Behavior Intervention Support (PBIS). Two directors have firsthand experience monitoring its successes as their son attends that school. This research-based, data-driven approach effectively maintains a safe and orderly school environment. It is inclusive and teaches students the appropriate way to behave in school, thereby maximizing academic achievement along with the behavioral competence of all learners. We are also looking at the Response to Intervention (RTI), a model for struggling learners, anchored in high quality, culturally and linguistically responsive instruction and assessments (Buffum, Mattos, & Weber, 2009).

The RISA discipline policy is currently being crafted. We are fully aware that this policy must adhere to all applicable federal, state and local laws and regulations. As we endeavor to establish a meaningful and effective school policy manual, we are reviewing the best practices found in Harlem Village Academies, Blackstone Valley Prep, KIPP-NYC, and The Learning Community.

Uniforms will be worn by RISA students. RISA will establish a fund to provide uniforms to students whose families cannot afford them. Wearing a simple uniform diminishes differences among socioeconomic levels; ebbs distractions; promotes school spirit; improves student self-confidence; enables students to resist peer pressure; and, most importantly, institutes a culture of academic achievement and proper decorum. School uniforms identify students as members of a special community, dressed for their “job” as esteemed STEAM-learners.

Together in a school culture that honors hard-work, curiosity, and understanding, set in a positive and uplifting climate, RISA will accomplish its mission – to prepare ALL students to successfully compete in the global market place and to lead satisfying lives!

Through the action of its board members, the board will be modeling the school's culture, but will naturally look to the future management and teaching team to lay out the implementation of the finer grained details of establishing the initial culture, monitoring it and reinforcing it.

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V. Personnel

V(a). Establishing Persons or Entities

The “establishing entity” for the Rhode Island STEAM Academy (RISA) is the Arts and Cultural Alliance of Newport County, Inc (ACA) which is registered with the Rhode Island Secretary of State as a “domestic non-profit corporation” and was incorporated on August 17, 1992 with a formal purpose “to promote and support arts and cultural activities in Newport County.” ACA was granted IRS 501(c)(3) status on March 24, 1994 and is assigned Employer Identification Number 22-3270059.

In short, ACA advocates on behalf of Newport County's arts and cultural community and has sponsored a number of projects touching Newport County's public schools, including the MET School's Newport campus. ACA is a membership organization and RISA joined ACA as a dues-paying corporate member in November 2013. There are no known affiliations between members of the applicant group and ACA.

At this stage, ACA has not expressed interest in playing any role in school policy or management. RISA will continue to have informal discussions with ACA board members about leveraging ACA's considerable expertise to advance our complementary missions of unlocking social value through increased incorporation of the arts.

V(b). Applicant Group

The Applicants

Stephen Arendt	Educator; former academic dean with Naval Academy Preparatory School, Naval Station Newport; taught physics at Rensselaer Polytechnic Institute, Naval Academy Preparatory School and U.S. Naval Academy; served on Middletown High School SIT, Middletown Superintendent’s Council, and six SALT teams; long-time board member of Middletown Public Library. Lives in Middletown.
Karen Chang	PhD in Science Education; curriculum developer and researcher for Living By Chemistry, a high school guided inquiry curriculum project; professional development consultant; former NYC high school chemistry teacher; chemistry instructor with Naval Academy Preparatory School, Naval Station Newport. Lives in Newport.
Melita Morales	Completing Master's degree work at RISD with focus on integrated curriculum. 15 years experience teaching art in the San Francisco Bay Area. Last teaching assignment included grant-funded task to identify and implement the ideals of STEAM into a core curriculum.
Laurie Warner	Educator; Teach for America; founding principal Harlem Village Academies – elementary school, middle school. Lives in Newport.
Marco Camacho	Entrepreneur; NYC-based real estate and fixed income careers; City of Newport council member, former US Army officer. Lives in Newport.

Becky Bolan	Newport School Committee member. Experience as engaged parent inside Newport's public schools. Experience as CA math teacher. Lives in Newport.
Tom Kowalczyk	MIT graduate; 30+ yrs experience as US Navy civilian technical leader; founder of KMRM LLC that develops strategies to accelerate transition of new technologies into products; assists with K-12 workforce development efforts. Lives in Middletown.
Elizabeth Cullen	Civic activist. Point Association president, former officer of Newport Public Education Foundation, Newport public school strategic planning participant. 12 th generation Rhode Islander. Deep understanding of RI history. Lives in Newport.
Mike Cullen	Civic activist/blogger. Recently retired IBM software executive, retired US Air Force aviator/cyber intelligence officer, former officer of Newport Public Education Foundation and Rose Island Lighthouse Foundation, founded/operated KnowingNewport civic blog in 2002. Lives in Newport.

The Founding Group

The current founding group flowed from the crucible of a 2012-2013 charter school application process from the Newport County STEAM Academy (NCSA) and its eligible entity, The Boys and Girls Clubs of Newport County, Inc. Elizabeth and Mike Cullen had participated in many of the administrative, financial, and project management aspects of this unsuccessful proposal. Tom Kowalczyk had previously served as the key adviser on technologies like visual software programming and robotics. All other current founding group members joined the current effort after the NCSA proposal was submitted in 2013. This new group has taken the time to develop a shared understanding of the most pressing local and regional educational needs, and have had many hours of active discussions understanding and proposing alternative designs. This new group has also built personal trust.

Karen Chang and Stephen Arendt work at the Naval Academy Preparatory School (NAPS) that provides a rigorous curriculum in English, mathematics, chemistry, and physics to prior service sailors and Marines along with recent high school graduates deemed as possessing leadership qualities of interest, but at high risk of success at the U.S. Naval Academy (USNA) without the one academic year of study at NAPS. These 17 to 22-year old midshipman candidates hail from nearly all 50 states, most of whom identify with a non-white cultural heritage. Nearly all 250 to 300 midshipman candidates come from school systems and learning climates where their learning wasn't a priority. Successful completion of the rigorous NAPS STEM and writing program has been the most significant predictor of success in the Bachelors of Science degree program at the USNA, one of the premier undergraduate institutions in the nation. The effectiveness of the NAPS boost is paramount as testified by graduates who have reached the highest levels of military leadership, including Admiral Samuel Locklear, NAPS '73, who currently serves as the commanding officer of the U.S. Pacific Command, the largest military command in the world, and who is one of nineteen NAPS alums currently on active duty as an admiral or general. The success rates at NAPS and subsequently at the USNA attest to the impact of the NAPS program.

Elizabeth and Mike Cullen have been married for 26 years and are raising 10 year old son “Mac” Cullen who currently enjoys fifth grade at Newport's Thompson Middle School.

Founding Member's Contribution and Future Role

Name	Proposal Contribution	Future Role
Stephen Arendt	Mission development, administration, supervision, curriculum design, scope of grades, STEAM accreditation	Director
Karen Chang	Mission development, STEAM curriculum research and design, scope of grades, ongoing arts integration research	Director
Melita Morales	Adviser: consulting to the team on the insertion of the arts into an integrated curriculum.	Advisory Board
Laurie Warner	Adviser: school culture, human resources	Potential head of school, HR consultant, or Advisory Board
Marco Camacho	Scope of grades, understanding of at-risk population groups, understanding regional economic development directions, strategy of Middletown and Newport school district unification	Director
Becky Bolan	Adviser: local educational needs; school culture; food/nutrition	Advisory Board
Mike Cullen	Mission development, STEAM curriculum and project-based learning research, KidsCount data analysis; ongoing arts integration research; defining partnership strategy, school financials	Director
Elizabeth Cullen	Mission, curriculum design, scope of grades, arts integration research, national STEAM operations, outreach, recruiting, fundraising	Director
Tom Kowalczyk	Adviser: emerging hardware and software technologies that stimulate student interest and understanding; ideas around after-school and summer offerings that complement the RISA mission	Advisory Board

Notes:

- The signature of Karen Chang, an applicant group member, is shown on proposal cover page.
- The resumes for all members of the applicant group are shown in the Required Attachments #1 section.

V(c). Board Development and Duties

Compliance

The RISA board will comply with all applicable laws and regulations.

Board Member Onboarding

Members of the founding group began collecting and studying “best practices” documents for charter school governance beginning in January 2013 when they were active with the earlier Newport County STEAM charter school proposal. The current founding group is acutely aware of the disappointing developments when board members are recruited and brought aboard in a hasty manner. Generically, future board members will first be asked to spend time as volunteers at the committee level, giving them an opportunity to learn about the many facets of this project and enabling the board members an opportunity to gain a better insight into where their individual talents could best be harnessed.

Our school will start with a narrow grade span, but could grow quickly. The new founding group is committed to not repeating past mistakes. We have been practicing corporate governance since April 2013 with the formation of the *Newport County STEAM Academy Inc* (formally renamed Rhode Island STEAM Academy in March 2014) as a Rhode Island domestic non-profit corporation. In June 2013 the corporation formally retained Matthew R. Plain, Esq of Barton Gilman LLP as its legal adviser.

In order for the RISA board to more efficiently and effectively manage a new school with an atypical research component, i.e. the Curriculum & Professional Development (CPD) team that is described in Section IV, we will continue to evaluate the merits of retaining the ongoing services of a nationally respected consultant of charter school governance such as The High Bar or 4th Sector Solutions. Members of the founding group have repeatedly voiced a desire for RISA to leverage regional and national expertise and a resistance to parochial, “mom and pop” thinking.

In the near term, we have already established a cloud-based “RISA Governance” public folder at bitly.com/risteam containing, among other things, governance-related documents that we have found informative.

Table of Board Positions

Name	Role	Comment
Karen Chang	Director	
Stephen Arendt	Director	
Marco Camacho	Director	
Elizabeth Cullen	Director	
Mike Cullen	Director	

Name	Role	Comment
<i>Vacant</i>	<i>Director</i>	<i>Holding slot for parent representative</i>
<i>Vacant</i>	<i>Director</i>	<i>Holding slot for instructional staff representative</i>
<i>Vacant</i>	<i>Director</i>	<i>Holding slot for individual with broad arts background</i>
<i>Vacant</i>	<i>Director</i>	<i>Holding for representative of local STEM community to improve the oversight of RISA's CPD research function</i>
<i>Vacant</i>	<i>Director</i>	<i>Holding slot for individual with legal background</i>
<i>Vacant</i>	<i>Director</i>	<i>Holding slot for individual with chief financial officer background</i>
<i>Vacant</i>	<i>Director, ex-officio</i>	<i>Holding for representative from Newport or Middletown public school system to facilitate the sharing of K-6 STEAM methods</i>
<i>Vacant</i>	<i>Director, ex-officio</i>	<i>Holding for representative from Newport or Middletown city/town council to facilitate regional economic development interests relating to STEAM</i>

Biographical Highlights

Stephen Arendt	Educator; former academic dean with Naval Academy Preparatory School, Newport; taught physics at Rensselaer Polytechnic Institute, Naval Academy Preparatory School and U.S. Naval Academy; served on Middletown High School SIT, Middletown Superintendent's Council, and six SALT teams; long-time board member of Middletown Public Library. Lives in Middletown.
Karen Chang	PhD in Science Education; curriculum developer and researcher for Living By Chemistry, a high school guided inquiry curriculum project; professional development consultant; former NYC high school chemistry teacher; chemistry instructor with Naval Academy Preparatory School, Newport. Lives in Newport.
Marco Camacho	Entrepreneur; current City of Newport council member, former US Army officer. Lives in Newport. The majority of the city's Section 8 housing resides within his council ward.
Elizabeth Cullen	Civic activist. Point Association president, former officer of Newport Public Education Foundation, Newport public school strategic planning participant. 14 th generation Mayflower descendent and 10 th generation Rhode Islander. Deep understanding of RI history and psychology. Lives in Newport.
Mike Cullen	Civic activist/blogger. Recently retired IBM software executive, retired US Air Force officer/cyber intelligence, former officer of Newport Public Education Foundation and Rose Island Lighthouse Foundation, former chair of City of Newport Trust & Investment Commission (police/fire pension, OPEB), founded/operate KnowingNewport civic blog. Lives in Newport.

Affiliations

The school could potentially secure services from the City of Newport in which case Marco Camacho would likely recuse himself from voting on the contract. Rhode Island STEAM Academy Inc is a corporate member of the eligible entity, the Arts & Cultural Alliance of Newport County, Inc and has signed a standard fiscal agent agreement with the organization to facilitate RISA's near-term fund raising.

Overseeing School Finances

The Board of Directors will meet at least six times a year and will be responsible for governance and fiduciary oversight. The board will: oversee the financial integrity of the school and use an independent auditor annually. The Board will elect a Treasurer with a background in finance and/or accounting. The Treasurer will serve as Chair of the Finance Committee, and will work with the Head of School to ensure that an annual audit is completed. The Annual Operating Budget will be presented to the Board for approval. At each board meeting, the actual Operating Statement will be compared to the Operating Budget and reviewed by the Board. In addition, a Monthly and Annual Cash Flow Statement will be provided to show the cash requirements and the time periods when insufficient cash could necessitate borrowing or fund raising.

Fiscal planning will be governed by the board, which is ultimately accountable for the school's finances. The Head of School, in concert with the board's finance committee, will prepare the long-term fiscal plan, which the Head of School will manage. Implementation of this plan may be delegated to the Director of Operations and a Bookkeeper and supported by a CPA, who will provide financial advice and annually review the school's books. The finance committee will secure an audit firm to conduct the annual audit. The finance committee will seek a revolving credit line sufficient to support the operations in case of a cash deficit. This finance committee will help the Head of School and the Director of Operations with this line of credit application.

School Leader Accountability

The Board will formally evaluate the Head of School annually using data from (a) "360-degree" surveys of culture and climate among all members of the school community including teachers, students and parents, and most importantly (b) observed achievement levels from results of tests and from comparisons with the board's written expectations. The use of a cloud-based school governance tool is being evaluated and could make it easier for the board to provide informal performance feedback to the Head of School on at least a quarterly basis.

Academic Performance Review

RISA's board is ready to be held accountable for making strong measurable gains in PARCC performance, outperforming comparable students from sending communities. RISA's board is accountable for six ambitious goals with measurable performance metrics as conveyed in Section VI regarding student achievement, stakeholder participation, and STEAM research.

The founding group takes public accountability very seriously. Through published reports, surveys, external evaluators, RIDE monitoring visits, and community participation, we invite the public to ensure that the school keeps its promises and maintains its focus on delivering educational excellence to our early learners.

Challenging Board Decisions

RISA's board expects staff to resolve disputes at the lowest possible level. Should the Head of School or parent bring a matter before the board, we will do our best to address the concern. Of course, RISA will abide by RI General Law 16-39-2 "*Appeal of school committee actions to commissioner*" which states:

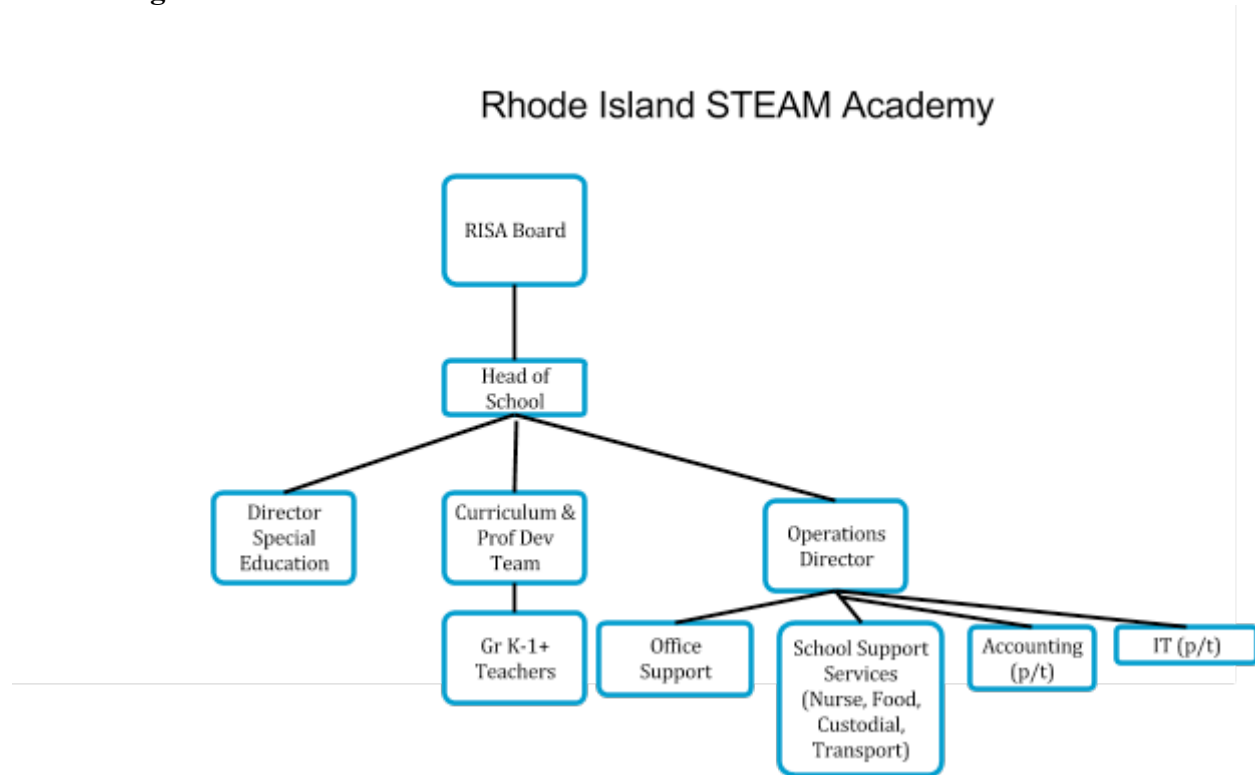
"Any person aggrieved by any decision or doings of any school committee or in any other matter arising under any law relating to schools or education may appeal to the commissioner of elementary and secondary education who, after notice to the parties interested of the time and place of hearing, shall examine and decide the appeal without cost to the parties involved."

REQUIRED ATTACHMENT #1 and #2: Resumes of founding group and board members are attached

REQUIRED ATTACHMENT #3: Draft bylaws are attached

V(d). Personnel Structures

School Organizational Chart



Staffing Chart (2015-2020)

Position	2015-16 #	2016-17 #	2017-18 #	2018-19 #	2019-20 #
Head of school	1	1	1	1	1
Operations director	1	1	1	1	1
Curriculum & professional development specialists	2	2	2	2	2
Academic director	0	0	0	1	1
Special ed director	1	1	1	1	1
Nurse	1	1	1	1	1
Family/community outreach coordinator	1	1	1	1	1
Teachers	6	9	12	15	18
Para-professionals	6	9	12	15	18
Office support	1	1	2	4	4
I/T support (part time)	0.5	0.5	0.5	0.5	0.5
School support services	2	3	4	5	6
Accounting (part-time)	0.5	0.5	1	1	1

Staffing Assumptions

- One teacher and one para-professional per 25 students;
- Two specialists (one STEM-oriented, one art-oriented) on the curriculum & professional development team which is a key function, unique to RISA, and will be create a dynamic feedback loop of improvement in delivering our integrated STEAM curriculum.
- Teachers and para-professionals comprise an indispensable team approach to teaching and learning through sharing some responsibilities in order to help weaker achievers meet achievement standards
- I/T and accounting is currently assumed to be part-time but may be outsourced;
- Starting in the 2018-19 school year, an academic director will function as the school principal for the second educational site;
- Some or all of the school support services may be outsourced. In-sourcing is reflected in the table.

V(e). Leadership

Selection of School Leader

The Board will hire the school leader, or Head of School as soon as practical after receipt of initial charter approval. A hiring agency may support the board's recruitment efforts. The school leader will then establish procedures for hiring additional staff beginning with the operations director and curriculum & professional development team.

Job Descriptions of Administrative Team Members

- **Operations director:** supervises the office staff, accounting, transportation, custodial, food service, information technology, nurse, establishes and implements personnel policies (with the head of school), maintains the facility, and organizes school-wide events.
- **Academic director:** provides instructional leadership of RISA; supervises curriculum delivery; influences future curriculum development; handles recruitment, hiring, training and evaluation of instructional staff, special education staff, and ELL staff; organizes professional development opportunities; manages the assessment system; and is responsible for student performance. Please note: In Years 1 through 3, the Head of School is expected to shoulder these responsibilities. Ahead of the expected opening of a second site in Year 4, we expect to hire another individual singularly focused on the duties of academic director.

Terms and Conditions of Employment and Qualifications

RISA will adhere to all statutory requirements for a public, independent charter school and understands, per RIDE guidance titled “Certification Redesign: Charter School Certification” that *“all charter schools are required to minimally employ a certified Chief Academic/Instructional Administrator, a certified Special Education Director, certified Support Professionals, and certified Teachers.”*

Evaluation Process for Deputies and Directors

The Head of School will establish procedures for the annual performance evaluation of deputies, directors, administrative, and instructional staff. The Head of School will secure final approval for the evaluation process via the board and its legal counsel.

REQUIRED ATTACHMENT #4: School Leader Job Description is attached

VOLUNTARY ATTACHMENT #10: Curriculum and Professional Development Team Job Description is attached

V(f). Teachers

Desired teacher qualities and characteristics

We will be taking a new educational approach through an educational mission that stresses “... *mastery, critical thinking, and innovation* using an integrated, *project-based* science, technology, engineering, arts/design and mathematics (STEAM) curriculum.” Our classroom will not be for the faint of heart. Students can hail from environments that reflect multicultural families and communities exhibiting strong learning supports to those where under-attended learning stems from challenging environments where learning is not a priority. Inbound students can also hail from ill-attended school districts reflecting insufficient achievement standards and/or curricular rigor. The tasks will be challenging, and they will be dynamic. We will be seeking instructors with the following attributes:

- Fully understands, shares, and is fully committed to the RISA mission
- Is an effective teacher of diverse learners and whose background in learning regimens spans differential learning environments.
- Exudes confidence in STEAM subject matter, reflecting competence in STEAM subjects
- Is a strong collaborator, willing to share in professional development settings
- Is a risk taker, not afraid of sudden change or participation in learning models and practices outside the traditional box
- Is entrepreneurial – not afraid to grab an opportunity that could deliver greater value
- Can lead our young learners in real-world problem solving.
- Has a clear lesson plan and learning objectives, gives detailed and clear instructions, ensures enthusiastic engagement of entire class, reaches to multiple learning styles
- Is a cooperative, respectful colleague, easy to work with, ready to help and share.
- Possesses honesty, integrity and modesty.

Teacher Recruitment and Selection Process

Recruitment and hiring of the most gifted and talented teachers for every classroom is the most crucial task ahead for the founding group. We will search for candidates regionally and nationally through multiple channels, including alternative teacher certification programs. Staff diversity is important. At a minimum, prospective teachers will be interviewed by the Head of School. All teaching staff will report directly to the Curriculum & Professional Development team whose function is detailed in Section IV.

Terms and Conditions of Employment and Qualifications

Employment terms and conditions will conform to Rhode Island General Laws and Rhode Island Department of Education policies. Appropriate certifications will be required.

Teaching Program of Typical Teachers

Our teachers will be expected to shoulder a broad set of responsibilities, spending on average 8.5 hours each day preparing for classes, teaching, monitoring the lunch room, assisting with dismissal, and meeting with parents and other important stakeholders. Please see the more detailed discussion under the heading of “Faculty Schedule” in Section VI Schedule Calendar. Accomplishing our academic mission is the highest priority and school staff members will be expected to “pitch in” whenever needed.

Teacher Retention Strategies

A survey of salaries and total compensation by position in the region will be conducted again later in 2014 to refine a competitive total compensation structure that will attract and retain talent. The compensation at RISA will be designed to attract the best teachers and staff and total compensation is expected to be at least 10% higher than nearby school districts, dependent upon credentials, experience, and performance. The founding group – many of whom have worked in the commercial sector – are strongly inclined to establish a school staff “bonus pool” that would be linked to the school's attainment of annual performance goals. We know that we will need to make significant investments in our school's human capital. Funding for this “bonus pool” is included in the budget attachment.

To ensure a high level of retention, the administration will conduct 360 degree surveys of job satisfaction. The survey will be developed by the Head of School and Curriculum & Professional Development team. If a staff member decides to leave the Academy, the Head of School will conduct an exit interview. If the reason for departure relates to a problem in school policy or procedure, necessary adjustments will be carefully considered.

Professional Development and Supports

As a grade K-6 school using an integrated STEAM curriculum and project-based learning, we know that we will be blazing a trail, at least regionally. We are already excited about sharing this journey with Rhode Island teachers who want to bring the benefits of an integrated curriculum and problem-based learning into their classrooms.

We are currently being guided by founding group member Melita Morales who is completing graduate studies at the Rhode Island School of Design and has recent teaching experience designing and deploying an integrated curriculum. We are forecasting a strong need for professional development within our cadre of teachers which we plan to address through the leadership of the two-person “Curriculum and Professional Development” (CPD) team described in item 5 within Section IV(a) *Guiding Principles*. This team will perform first line supervision of the teaching staff.

In addition to this CPD team, we also plan to have “reach back” capabilities to national consulting resources standing by to provide virtual and/or onsite help on the integrated curriculum front, including EdWorks and Buck Institute for Education. Project-based learning professional development, focused on our use of the “Launch” offering from *Project Lead the Way* (PLTW) will be accomplished during the summer of 2015 for our kindergarten and grade 1 PLTW lead teachers at Worcester Polytechnic Institute. (RISA completed the initial program registration steps with PLTW in March 2014 and we now receive regular updates on regional PLTW professional development activities).

Local universities and nonprofit organizations can also serve as valuable resources and collaborative partners providing human and educational resources. We will tap those resources, as relationships develop and opportunities emerge, for additional professional development. (For example, we note with considerable interest, Middletown High School's recently announced plan to offer PLTW's courses starting in the next school year). Weekly grade-level and content team meetings, facilitated by the CPD team, will be held to foster peer-to-peer support.

We are also fortunate that the schedule of a year-round school affords much greater opportunity for rich professional development opportunities including full-day experiences during more frequent year-round breaks. Our teachers will also be encouraged to take advantage of appropriate professional development opportunities available at our local and regional colleges and universities.

Formal evaluation

We recognize that this is a complex, dynamic question and we acknowledge the importance of Rhode Island's Teacher Educator Evaluation System and the RI Model. As a future Local Education Authority, we look forward to working with RIDE's Office of Educator Quality and Certification and the office's implementation guidance to better shape our internal policies and practices. The management processes associated with formal (and informal) feedback flowing to staff members will be further defined once the Head of School has been retained.

Support approaches

Generally, the founding group expects that the Curriculum and Professional Development team will be busy observing the instructional process and noting professional development needs or potential deficiencies in the curriculum. We expect the CPD team to be in close contact with the Head of School and expect that the Head of School will be updating the board each meeting on the curriculum and prioritizing professional development needs.

Governance and teacher involvement

The founding group believes that the voice of the instructional staff needs to be heard at the board's table. We are holding one director position open for a teacher or paraprofessional representative. The future Head of School will likely have additional paths by which to involve teachers in operational and management decisions.

V(g). Management Organizations and other Essential Partners

RISA does not intend to have comprehensive management or essential partner organizations. This subsection is not applicable.

V(h). Family-School Partnership

Parental/Guardian general involvement

Members of the founding group have had first-hand experience with schools with weak and strong partnerships with parents. We know that strong partnerships with parents (and many other community organizations) will be needed and that this will require hard work. We know that many of our parents likely will have no experience working closely with a school and will feel intimidated. The following high-level approaches are contemplated:

- Ongoing, “best practice” consultations on this challenging topic of community building and organizing with Jessica Walsh, director of prevention, Women's Resource Center, who has generously agreed to continue to advise the founding group going forward. For example, Ms Walsh has introduced us to the “Community Health Governance Model” which appears to be a strong framework for helping communities build “connectedness.” (Lasker & Weiss, 2003).
- Meeting early with parents, on their turf, right after the lottery. Understand and take inventory of their interests. Start building a level of understanding.
- Facilitating involvement as potential volunteers before, during, or after school. We know the barriers to potential school volunteers can be daunting.
- Effectively using recess / vacation periods where practical and feasible during the regular school year and during the summer component of three sessions.
- Annually garnering parental support for learning as a family priority.

Parental/Guardian involvement in governance and operations

Members of the founding group have had first-hand experience trying to shape the operations and policies inside a city government and school system. Many of us have addressed town councils and school committees and lobbied on an array of important concerns. We have first-hand experience with bureaucracies determined to ignore or squelch outside questions and suggestions. While local town councils and school committees wrestle with the concept of “citizen engagement,” RISA's founding group continues to discuss these high level approaches:

- Making it easier for parents to raise concerns about any aspect of the school experience.
- Providing a voice at the board table. We are holding one director position open for a parent/guardian representative. This may be a rotating, ex-officio position. Encouraging regular parental involvement in learning activities at RISA and at home, fostering ongoing communication simply from “rubbing elbows.”

Parental empowerment and support

The school anticipates that at least 51% of our students will come from FRPL-eligible homes many of which are unstable. The founding group recognizes the need to take a FEMA-like “Whole Community” approach to the needs of the student that transcend the classroom. (FEMA, 2011). The founding group members are familiar with the “family service coordinator” function that operates within local public schools and is sourced from East Bay Community Action Program (EBCAP). The founding team has met with EBCAP's Chief Operating Officer Ms. Susan Schenck and we expect to work with EBCAP on several fronts, including parental empowerment and support.

Measuring and responding to parent & student satisfaction

Stakeholder satisfaction is critical to RISA's success for many different reasons. We plan to:

- address satisfaction problems at the lowest possible level, but all stakeholders should feel comfortable raising issues with the Head of School or board chair.
- institute an internal student and parent/guardian satisfaction program. While likely unable to match the sophistication of “customer relationship management” systems operated by Fortune 500 firms, RISA can leverage manual and affordable online systems to help track and respond to concerns that flow into the school and touch the head of school, the teacher, an aide, the front desk, or a board member.
- conduct an annual year-end survey of each student and each family where the results will be used as part of the “360 degree” review of key staff members and the school board function.

Draft daily schedule - proposed daily student academic schedule at RISA

745 – 815	Before-school Individualized Instruction (need basis)
815 – 830	Assembly/Attendance
830 – 1000	Mathematics Block*
1000 – 1200	English Language Arts and Social Studies (+ foreign language) Block*
1200 – 1230	Lunch
1230 – 100	Individualized Instruction (need basis)/Physical Activity
100 – 400	STEAM (Science, Technology, Engineering, Math + ARTS) Block*
400 - 530	After-school Individualized Instruction (need basis) or Enrichment

Programs such as foreign language instruction (optional)
(* Breaks, play, music, or nap times will be included at teachers' discretion.)

Draft Annual Calendar

Please refer to Required Attachment #8 for the draft annual calendar.

Works Cited

Lasker, R.D., Weiss, E.S. (2003) Broadening participation in community problem solving: A multidisciplinary approach to support collaborative practice and research. *Journal of Urban Health*, 80(1), 14-47.

United States. Federal Emergency Management Agency. *A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action*. FEMA, 15 Dec. 2011. Web. 20 Mar. 2014. <<http://www.fema.gov/media-library/assets/documents/23781?id=4941>>.

VI. Schedule & Calendar

Introduction

RISA will be a twelve-month school with two components, the standard 180-day school year and the summer component. The summer component will consist of three sessions: early summer session, summer enhancement session, and the late summer session. The faculty will consist of curricular development professionals (CDP), classroom teachers (CT), and supplemental teachers (ST). The faculty will be twelve-month employees who will have sufficient opportunity for vacations similar to the federal civil service model (Title V). This model supports the ability to provide additional attention to learning needs and learning enhancements in excess of the standard 180-day school year.

Standard Public School Year

The school year will conform to state requirements for 180 days generally starting the day after Labor Day (or shortly thereafter) and continuing to the middle or near the end of June with comparable holidays, three recess / vacation periods, professional development days, and adjustments for snow days. The faculty (CDP, CT and ST) will propose any additional RISA achievement standards unique to a STEAM curriculum, in addition to the established RIDE achievement standards, to the Board of Directors for approval. This process will enable the establishment of RISA achievement standards that enhance STEAM success in addition to the backbone of success that RIDE achievement standards provide. Students who meet these RISA achievement standards will end the school year on the 180th day except for additional requirements during the summer enhancement session. Recess periods / vacations during the 180-day school year can also be opportunities when selected students receive additional assistance as warranted and as per faculty and staff availability. Students who have not met RISA achievement standards will continue their studies during the early and / or late summer sessions.

Early Summer Session

Students who need further preparation (ramp up, review, and / or reinforcement) in order to fulfill RISA achievement standards will continue their studies for up to four weeks until mid July. Teachers will tailor learning experiences to the primary learning needs and reinforce other areas. Depending upon the interest and availability of the faculty and staff, further study on topics of mutual interest can occur for any RISA student.

Summer Enhancement Session

RISA embraces the notion that learning is a privilege, intrinsically and inherently valued, omnipresent, and fun. Learning is a self evident activity, like breathing. The excitement of learning a robust set of topics instinctively enhances the soul. Consequently, summer enhancement programs will follow the early summer session generally for two to four weeks. Each student will attend at least one session. Sessions will generally consist of one to two week enhancement programs. Courses may include topics such as etymology, environmental science, life sciences, astronomy, introduction to or continuance of a foreign language, introductory

psychology, mathematical puzzles or numeracy topics, history of U.S. presidents, geography, the environment and energy conservation, cultures and/or customs of other countries, art appreciation, RI art and / or heritage, information technology, computer game theory, computer programming, robotics, competitive lego construction / cities, theory of chess, photography, and foreign country internships. Guest presenters can be invited to conduct courses. RISA faculty can conduct STEAM camps. A STEAM Olympics can occur with STEAM academies / programs / groups elsewhere around the globe, connected via the Internet. Some waivers can occur if the student has fulfilled an equivalent enhancement earlier in the summer or concurrently take an enhancement course or experience abroad or elsewhere in the U.S.

Students who have not passed all RISA standards and whom the teachers deem unlikely to pass these standards after the Late Summer Session will continue their learning regimen after a two-week break for the remaining two weeks of this four-week session.

Late Summer Session

A ramp up, review, and / or reinforcement week will occur from one to three weeks before Labor Day for veteran students that the faculty deems warranting this consideration, predominantly based upon past achievement. Students who have yet to meet RISA achievement standards will proceed with their learning regimen (ramp up, review, and / or reinforcement) after a one-week break that follows the end of the Summer Enhancement Session and continues until the start of the regular school session.

Community Service

Students will also participate in community service for two consecutive weeks (or at least ten days over several weeks) during the summer recess.

New Students

The March lottery will allow for up to 15% more students per class than the planned size to counter departures from family mobility, excluding military families. Military families will be afforded a fixed maximum number of students per class. Assessments will be administered to these students to ascertain placement. Students deemed in need of preparation before the start of the new school year will participate in as many summer sessions as deemed essential to ensure a smooth transition into their regular school year class.

Sample Calendar for AY14

A sample calendar for the 180 days in academic year 2014 (AY14) is the calendar for the Middletown High School (refer to Required Attachment #8). From the middle to the end of June to the beginning of September will be the three summer sessions. Sample dates for 2014 are:

- Early Summer Session 1: 25 June to 19 July
- Summer Enhancement Session 2: 22 July to 16 August
- Late Summer Session 3: 19 August to 4 September.

The lengths of each session are flexible, depending upon the development of students and interests for the enhancement (middle) session.

June 2014				
Monday	Tuesday	Wednesday	Thursday	Friday
24	25	26	27	28
July 2014				
Monday	Tuesday	Wednesday	Thursday	Friday
1	2	3	4 - Holiday	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
29	30	31		
August 2014				
Monday	Tuesday	Wednesday	Thursday	Friday
			1	2
5	6	7	8	9
12	13	14	15	16
19	20	21	22	23
26	27	28	29	30
September				
Monday	Tuesday	Wednesday	Thursday	Friday
2 - Holiday	3	4		

Faculty Schedule

Faculty and staff are 12-month employees predominantly following the federal civil service employment model (U.S. Code Title V), a model occurring at many Department of Defense Schools on bases and posts throughout the world. Leave (sick, annual, bereavement, and credit hours) is determined based on amounts accrued upon the completion of two-week pay periods. Consequently, faculty will be present based upon their availability of accrued leave during periods when school is not in the 180-day regular session. Faculty will also be present during most of the three summer sessions. However, priority will occur for the taking of leave, particularly during the early summer session.

Faculty positions will consist of two accomplished professionals who will develop the curriculum (particularly STEAM learning projects) and evaluate instruction. One will be an “art” type and the other will be a “STEM” type. Each classroom of about 25 students will have one classroom teacher.

Additionally, for the proposed six classrooms (three for K, three for Grade 1) between four to six supplemental instructors will also be present within the classrooms. They will be proficient enough to substitute for the teacher upon short notice, even at a moment’s notice. Their roles will include teaching part of the curriculum for the classroom teacher as part of the program, not an optional addition. They will be every bit faculty as the classroom teacher and jointly with the classroom teacher receive credit for the learning accomplishments of their students. The

supplemental teachers may arrive and depart at different times during the school day to address learning needs before and after the class day. They will also predominantly run the ramp up, review, and reinforcement sessions in the summer. Volunteer tutors will be afforded ample opportunity to help during times when the doors open and close each school day, 730am to 530pm. Voluntary night tutoring may also be considered depending on student availability and personnel (mainly voluntary) resources.

The classroom and supplemental teachers will teach during the summer session unless replaced by visiting or guest teachers. Aside from taking some leave during the summer, all teachers will schedule professional development to occur during the summer months to include attendance at professional conferences in their discipline. Ramp up, review, and reinforcement sessions will be preempted by professional development commitments.

Classroom teachers and supplemental teachers will work atypical work schedules. Two available schedules will undergo consideration by each grade teacher. Some personnel flexibility may occur in order to optimize performance and productivity.

- The first option is the 8½ hour day (eight hours of work with ½ hour of lunch whether taken or not) model for Monday through Friday of each work week.
- The second option is the 9 ½ x 8/8½ x 1/ 0 x 1 model (eight days of 9 hours of work per day plus one day of 8 hours of work and one day leave during a two-week pay period. Holidays will be the one eight-hour work day during a pay period. Faculty in a classroom will stagger their “0” day. The “0” affords a teacher a long weekend, day for professional consulting / writing / research, including non-RISA activities. Class-wide assessments or class quizzes / tests can also occur on “0” days.

Teachers can take a longer lunch period by tacking on the additional lunch time at the end or start of that day’s work schedule. Generally, one of the two supplemental teachers will arrive at the start time of the school day and the other one will report later to end the work day to coincide with the closing of the school day. Teachers will qualify for a sabbatical (resource dependent arrangements) after seven years of work. Generally, supplemental instructors will fill in for the teacher. Flexible working conditions and quality professional development that occur without sacrificing learning effectiveness are paramount to teacher readiness and optimal learning.

Supplemental teachers will conduct special session activities on the day that the classroom teacher is absent, if the curriculum allows. This can also be a day to help weaker students catch up. It can also be an opportunity to reinforce the value of selected or needed learning that possibly results in lengthy periods for reading, class walking / observation time, catching up on past homework, intelligent practice, make-up or optional work on STEAM projects, etc.

Volunteer parents and guests will be able to supervise and mentor students during the early morning and late afternoon periods. They may also tutor students during these times as well as during the class periods at the discretion of the classroom teacher. The classroom teachers will share some classroom teaching duties with the supplemental instructors, who will fill in for an absent classroom instructor, as previously mentioned. This practice negates the need for

substitute teachers on the RISA faculty and staff. To the extent available, volunteer non-RISA teachers (retired professionals, interns, faculty exchanges, sabbatical faculty, etc.) may also fill in for RISA teachers.

School Day / Activities

School will be open from 730am to 530pm, comprising eight periods:

Period 1 is the BCD (Before the Class Day) period for arrival and early morning session activities: 745am – 815am. Doors open at 0730am.

Period 2 is the AP (Administrative Period) period for student assembly and attention to administrative duties, the beginning of the class day: 815am – 830am.

Period 3 is the Mathematics Block 1: 830am – 1000am.

Period 4 is the ELA and SS (+foreign language) Block 2: 1000am – 1200pm.

Period 5 is the lunch period: 1200pm – 1230pm.

Period 6 is the II / PA (Individualized Instruction (needs basis) / Physical Activity) period: 1230pm – 100pm.

Period 7 is the STEAM Block 3 during which a snack and brief recess will occur: 100pm – 400pm.

Period 8 is the ACD (After the Class Day) period for administrative duties, departure, and afternoon session activities: 400pm – 530pm.

The early morning session from 745am to 815am and the late afternoon session from 400pm to 530pm will allow for ramp up, review, reinforcement, make ups (priority), clubs, music lessons, physical fitness, breakfast, etc.

RISA is about parental and community connection. Students who participate in varsity sports in their home school / district will be allowed departure only if above satisfactory achievement occurs in all disciplines. Parents who drop off and pick up students during these two periods will proportionately contribute to expenses that are comparable to customary child care fees when feasible / affordable. All children will be expected to arrive by 800am to read (primarily) and / or play, becoming acquainted with other children. Parents will be encouraged to spend some time reading, walking, and playing with the children on an available basis during one or both of the two early morning or late afternoon periods from one to three days each week. The early morning and late afternoon sessions are considered as part of the RISA school day. The school class portion (RIDE school day) is part of the RISA school day.

Special events will coincide with similar events at neighboring / representative schools / districts. Science fairs, art exhibits, concerts, robotics, lego construction / cities, meet the author, portfolio displays or demonstrations, neighboring library attractions, etc. will be common. Internal activities will be scheduled during the early morning and late afternoon periods so as not to conflict with classes during the scheduled class day (the reason for being).

The school will conform to a semester schedule with mid-term grades occurring at about the midpoint of each semester. Letter grades will be determined by the teacher and aligned with the overall guidance of administrative grading standards. These standards will adhere to the

philosophical underpinnings of the curriculum; ensure differential grades that are normed to satisfactory achievement on teacher-prepared and standardized assessments, and support transitioning requirements for students subsequently attending other public schools.

Weekly Schedule

The weekly schedule is the daily schedule replicated for each day of the week that classes are in session as per the school calendar. The daily schedule above indicates the time periods for students. The daily schedule for classroom faculty will comprise of three blocks of classes totaling 6 ½ hours. Non class times within the eight-hour day are the 30-minute discretionary periods from 745am – 815am and from 1230pm – 100pm. A brief non-class period during period 7 occurs for a snack and brief recess. Teachers may eat lunch with students but will not typically have a scheduled lunch duty during their 30-minutes of non work status for lunch each work day.

Several opportunities will occur for individual planning and team meetings. The bulk of planning and professional development will occur during the two months in the summer. However, there are also times other than the full days in the school calendar during which teacher meetings can occur for team planning and limited professional development. Additional opportunities can occur upon the occasion when a supplemental instructor fills in for the classroom instructor, an occurrence as frequently as daily depending upon the interests and topics and at the discretion of the classroom instructor. During class days the classroom teachers can use one of the two 30-min periods mentioned above to meet with the same grade, all teachers, or a select group of classroom teachers during either or both of these times. At their discretion all classroom teachers can meet during the BCD or ACD periods for longer meetings. For most meetings, supplemental instructors will also be in attendance. Most of the team meetings that don't fall into the category of urgent, however, will likely occur during recess / vacation periods during the school calendar for those not taking leave during these entire periods. Teachers will plan classes well in advance of classes taught and participate in professional development as a priority but not to preempt classroom teaching responsibilities.

Additional Staff

Additional staff will include day care personnel for the early morning and late afternoon periods, health and family services professionals, lunch personnel, custodians, hallway monitors, lunch monitors, etc. as deemed necessary and common for most, if not all, RI public schools.

Background Checks

All faculty, staff, and volunteers will submit to background checks plus any other additional RIDE established safeguards to ensure a safe environment for RISA children to learn and play. Checks will be complete before prospective employees will become RISA employees.

REQUIRED ATTACHMENT #8: Draft school calendar is attached

VII. Student Enrollment, Outreach, and Demand

Table 7-1: Annual Maximum Enrollment by Grade

Year	Pre-K	K	1	2	3	4	5	6	Total	Sites
2015-16	0	75	75	0	0	0	0	0	150	1
2016-17	0	75	75	75	-	-	-	-	225	1
2017-18	TBD	75	75	75	75				300	1
2018-19	TBD	75	75	75	75	75			375	2
2019-20	TBD	75	75	75	75	75	75		450	2
2020-21	TBD	75	75	75	75	75	75	75	525	2
2021-22	TBD	75	75	75	75	75	75	75	525	2

Rationale for the school's growth plan

The above growth plan represents the “best case” scenario which contemplates three classes per grade, with 25 students per classroom. The plan has been shaped by lessons learned from the NCSA group's 2013 proposal which launched with a broad span of grades and had not reviewed recent birth data. The sending districts currently have about 800 children a year enrolling in kindergarten. We believe that our unique offering will initially capture ten percent of the available market. As public knowledge grows, so will demand for seats.

Our approach is to open with only grades K and 1 (with two or three classrooms per grade) and growing just one grade each year. We are currently assuming 25 students per classroom but are continuing to review the latest research about human resources, our specific curriculum, and technology variables that ultimately drive a revised student to classroom ratio.

Table 7-2

	Enrolling More Students	Enrolling Fewer Students
Benefits	<ul style="list-style-type: none"> • Additional tuition • Creates more pressure and incentives for sending districts to move beyond their status quo 	<ul style="list-style-type: none"> • Greater one-on-one attention
Challenges	<ul style="list-style-type: none"> • Impact on culture • Integrating new teachers into the school • Additional “lumpy” expenses 	<ul style="list-style-type: none"> • Harder to break even financially, especially in the early years when fixed overhead will be spread across a smaller student population. Will place a bigger demand on private grant fundraising.

Rationale for school size

Members of the founding group have watched and participated in the local school systems (and associated city/town governments) for over 20 years. Our school size rationale has been influenced by:

- findings from the OECD PISA 2012 tests that *should* be alarming to RI's citizens: (OECD, 2013)
 - “Among the 34 OECD countries, the United States performed below average in mathematics in 2012 and is ranked 26th.”
 - “Just over one in four U.S. students do not reach the PISA baseline Level 2 of mathematics proficiency – a higher-than-OECD average proportion and one that hasn’t changed since 2003. At the opposite end of the proficiency scale, the U.S. has a below-average share of top performers;”
 - “Students in the United States have particular weaknesses in performing mathematics tasks with higher cognitive demands, such as taking real-world situations, translating them into mathematical terms, and interpreting mathematical aspects in real-world problems. An alignment study between the Common Core State Standards for Mathematics and PISA suggests that a successful implementation of the Common Core Standards would yield significant performance gains also in PISA;”
- the stellar, best-ever-seen, academic performance of Boston public charter schools (Stanford CREDO, 2013);
- loud and regular cries from RI's leaders for a better skilled workforce to address chronic RI underemployment and the worst unemployment rate in the U.S;
- watching a significant number of local students achieving at only Level 1 or Level 2 on NECAP tests, coupled with positive feedback flowing to members of this founding group from leaders of local social welfare organizations;
- the low percentage of regional students achieving at Level 4 on NECAP tests, coupled with the strong flow of parental sign-ups to our “Show Your Interest” form;
- the strong NECAP achievement gains performance at Thompson Middle School led by principal Jamie Crowley and his team and our desire to take an integrated curriculum and project-based learning model to bolster future middle school performance;
- loud, sustained cries from many RI quarters to reasonable concepts such as high school graduation requirements and the implementation of Common Core standard, juxtaposed to legislative debate whether calamari should be the state's official appetizer;
- our desire to show local elementary school teachers and leaders the STEAM “art of the possible” via joint professional development training;
- the new set of Newport-Middletown school regionalization or unification discussions and the recognition that Portsmouth and Tiverton have opted out of these discussions.

We believe that it is important to size our school so that it is viewed within our regional community as having sufficient critical mass to build a durable school-community ecosystem that makes it “cool to be smart,” that produces a solid flow of well-prepared and confident middle school students, and further nudges citizens and elected leaders towards a unified school system that will take action to “raise the bar” for all their students.

Student attrition assumptions

We are expecting 10-20 percent annual attrition stemming from military family moves, other family- driven moves, and “customer” desire to simply try something else. Vacancies will be populated quickly through established waiting lists.

School recruitment process

The RISA team has been addressing this challenge since November 2012 when NCSA submitted its statement of intent through the Boys & Girls Clubs of Newport County. We had previous “sales collateral” in English and Spanish and have since updated both versions to reflect our tighter Grades K-6 focus. The “information-rich” parent segment quickly found RISA via our regular social media activities on blog postings to KnowingNewport, Facebook, Twitter, and our regular “STEAM Rising” and opinion items posted to numerous Patch websites in the West Bay and Easy Bay. We now need to get our value proposition in front of less connected parents/guardians.

We are highly likely to use some teaching talent sourced from organizations that facilitate alternative paths to teacher accreditation, such as *Teach for America* and *Troops to Teachers*. These paths likely necessitate the school having a population that is at least 51% FRPL eligible. Less-informed communities will be reached, in a face-to-face manner, by leveraging the contacts that we have already established with the following agencies:

- Newport Housing Authority
- East Bay Community Action Program
- St Joseph's Church, Newport
- Boys & Girls Clubs of Newport County
- Martin Luther King Center
- The Arts and Cultural Alliance of Newport County (our 501(c)(3) sponsor)
- Newport and Middletown school superintendents
- Paul Crowley East Bay MET Center

The Enrollment Process

For prospective students, the RISA leadership team will use the basic enrollment application forms as provided by RIDE. Applications will be accepted via mail, email, or in person. RISA does not discriminate on the basis of intellectual ability, measures of achievement or aptitude,

athletic ability, disability, race, creed, national origin, ancestry, religion, or any other grounds that would be unlawful if done by any other public school.

RISA will accept applications for designated grades (“lottery grades”). In the event that a school receives more applications than there are seats available in a lottery grade, the school will conduct a lottery to determine admission into that grade. We will follow the Charter School Non-regulatory Guidance on Enrollment.

RISA will work with RIDE to employ a lottery preference for students eligible for Free or Reduced - Price Lunch (FRPL) so that the school can yield a combined FRL population of at least 51%.

Works Cited

Center for Research on Education Outcomes, (2013). *Charter School Performance in Massachusetts*.
<http://credo.stanford.edu> (Accessed on March 28, 2014).

OECD, (2013). "Country Note - United States - Key Findings." *Programme for International Student Assessment 2012*. <http://www.oecd.org/pisa/keyfindings/PISA-2012-results-US.pdf> (Accessed on March 28, 2014).

VIII. Facilities

Facility specifications

Founding group members are generally familiar with the connection between program functional needs and building needs. In 2001, one founding group member actively participated with Thompson Middle School renovation fundraising for furniture and technology while another member vigorously drove the school's ultimate teacher technology plan. A former founding member associated with the 2013 NCSA proposal met with RIDE school construction coordinator Joseph DaSilva in February 2013 who provided us with the useful planning metric of providing at least 35 square feet per student. We have supplemented this metric with detailed planning guidance from the *"Public School of North Carolina Facilities Guidelines" (Sept 2013)* to create initial space estimates.

Facility needs vs. enrollment plans

In 2015 (Year 1) the school will require at most six 1,000 net square foot classrooms for instruction and an additional 8,300 net square feet space for other functions. In total, 150 students and their six teachers will drive the need for 14,330 net square feet, or 96 net square feet per student. We have assumed a net to gross factor of 0.3, meaning that the net is 0.7 times the gross ($0.7 \times 20,471 = 14,330$) and the difference between the net and gross is 0.3 times the gross [$(20,471 - 14,330) / 20,471 = 0.3$]. (Refer to Figure 8-1: Year One Facility Space Required Estimate, on page 59.)

Each subsequent year assumes 75 additional students, using three additional classrooms and some additional non-instructional space. The total annual growth is about 5,500 net square feet or 7,800 gross square feet.

The founding group recently toured the Pell Elementary School in Newport and understand that this school's gross square feet per student is about 122 which gives us a some confidence that our coarse approximation is reasonable.

It is unlikely that the initial school site will be large enough to house all grades of the RISA once student enrollment exceeds 300 students. Therefore, the RISA board will need to locate a second facility to accommodate grades 4 through 6 by 2018 (Year 4). Locating a second building is a strategic need and will be a high priority for the RISA board. (Refer to Figure 8-2: Year Five Facility Space Required Estimate, on page 60.)

Finding a facility

We are optimistic that we will be able to secure a suitable facility. Beginning in November 2012, a member of the founding group began working with a local commercial real estate broker who is well versed on Aquidneck Island properties that could fit RISA's requirements. Currently the supply of turn-key properties is low while the demand for available supply appears to be on the rise as various entities begin thinking about where to operate future pre-kindergarten programs. Contributing to the current supply shortage is a mid-2013 decision of Middletown

town council to severely restrict leasing opportunities of the former John F. Kennedy Elementary School complex on West Main Road. This site is attractive because it reportedly complies with new fire codes, is well maintained, is on a major arterial road, is near the Newport border, and has ready access to fiber optic bandwidth. The site also creates opportunities to share services with pre-K providers who might operate at that site.

With the opening of the new Newport's Pell Elementary School, Newport's school committee recently vacated and returned to the City of Newport several dilapidated elementary schools. While these schools might have sufficient floor space to accommodate RISA operations for Years 1 through perhaps Year 3, each would require a fire code upgrade estimated to start at \$1.5 Million.

We also recognize that Middletown schools continue to make progress on a 10 year plan for their own aging school facilities. This community-wide planning effort is moving ahead separate from the Middletown-Newport regionalization/unification talks that are taking place on the council side. We have been marketing RISA's value proposition to many of the leaders in both communities and we see where we could bring our early STEAM focus as a vibrant, complementary feature to their future learning delivery plans.

Figure 8-1: Year 1 Facility Space Required Estimate

RISA Facility Specs				Year 1	
Grade K-1 150 students					
Need	SF	Unit	Quantity	Total SF	Net
Classrooms	1100	classrooms	6	6600	
Project room	1100		1	1100	
Small Group Resource	450		2	900	
Multipurpose/Indoor PE	3600		1	3600	
Head of School	150		1	150	
Academic Lead	150		1	150	
Reception	200		1	200	
Secretary	150		1	150	
Conference Room	200		2	400	
Group Teacher Office	80	teachers	6	480	
Teacher Lounge	300		1	300	
Record Storage	100		1	100	
General Storage	200		1	200	
				Total Net SF	14330
				Total Gross SF	20471
<i>other considerations:</i>					Net to Gross
					0.3
outside windows for all classrooms					
greater than 15 ft ceiling for multipurpose room					

Figure 8-2: Year 5 Facility Space Required Estimate

RISA Facility Specs			Year 5		
Grade K-5 450 students					
Need	SF	Unit	Quantity	Total SF	Net
Classrooms	1100	classrooms	18	19800	
Project room	1100		3	3300	
Small Group Resource	450		4	1800	
Multipurpose/Indoor PE	3600		2	7200	
Head of School	150		1	150	
Academic Lead	150		1	150	
Reception	200		1	200	
Secretary	150		1	150	
Conference Room	200		4	800	
Group Teacher Office	80	teachers	18	1440	
Teacher Lounge	300		3	900	
Record Storage	100		1	100	
General Storage	200		1	200	
			Total Net SF	36190	Net
other considerations:			Total Gross SF	51700	Net to Gross
					0.3
outside windows for all classrooms					
greater than 15 ft ceiling for multipurpose room					

Regulatory Compliance

The current members of the founding group have little understanding of the regular updates and reports needed to comply with facilities-related state and local laws and regulations. Our plan would be to outsource this critical function to a suitably qualified organization, such as an existing local education authority. We note with considerable interest (and hope) that the Newport and Middletown school committees agreed in March 2014 to move forward with a nine month trial of a facilities management, shared services arrangement. Hopefully this trial will establish a climate where more services can be shared across Aquidneck Island.

Contracts Review

RISA will provide the RIDE Office of Charter Schools a copy of the terms and conditions for use of a facility, including draft lease or purchase agreements, once a space has been identified.

Board Review of Facilities Issues

The RISA board will be addressing action on facility-related issues through the facilities subcommittee that the board approved and created in April 2013.

Management of Facilities

Facilities-related issues will be addressed by the school's operations director who in turn reports to the Head of School.

IX. Operations

School health programs and school safety plans

RISA will comply with pertinent school health and safety requirements. School staff will provide all health services required by Rhode Island Law and the policies of RIDE outlined in the RIDE Basic Education Program.

School safety and emergency response plans

Emergency response procedures will be developed by the Director of Operations in collaboration with the Newport and Middletown police and fire departments as appropriate. In collaboration with first responders, we will conduct all hazard drills to ensure school staff and students are familiar with the procedures to get everyone to safety in the event of a school emergency.

Student health services

We will secure the services of a certified nurse who will oversee the health services program including the proper and confidential maintenance of student health records, immunization and diagnostic testing. We will conduct outreach to Health Services Organizations and make sure we have access to the resources that enable access to student healthcare services including medications and treatment when it is required.

Rhode Island immunization requirements will be fully implemented and a certificate of immunization will be required of every new student. Immediately following the lottery, and prior to the start of the academic year, parents or guardians will be required to provide documentation on vaccines already received and any subsequent doses that are required. In accordance with Rhode Island General Law, parents may request a waiver of the vaccination requirement in writing to the school nurse who will make the final decision on the request. Evidence of student physicals will be required as per Rhode Island Law.

School's food service and nutrition program

Believing that children who are well nourished are ready to learn, we plan to take part in the National School Lunch and breakfast programs. We plan to make available a universal breakfast program, using The "Breakfast in the Classroom" model. We will meet all requirements set forth in RINR. We will contract out for lunch and Breakfast services from one of our neighboring school departments. We will meet all requirements of The 2010 Healthy Hunger Free Kids Act to include providing access to fresh drinking water in the lunchroom. Children will have access to hand washing. We will follow best practices to include:

- recess before lunch
- adequate time to eat lunch
- a cafeteria atmosphere that encourages manners
- a warm, caring, relaxed atmosphere for eating
- a nutrition education program that encourages healthy lifelong choices

On final approval of opening the academy, we will seek interested parents, community health partners, staff and students to form a Health and Wellness Committee to set clear policy, guidance, and goals relating to all health issues. All federal and state mandates will be

addressed, with special attention given to meeting the new requirements taking affect in 2014. This committee will meet regularly to review progress towards these goals. We will use the template resources being developed by RIDE in the writing of our policy. Our policy will address and encourage healthy lifestyles for all staff members.

Transportation plan

RISA will draw students from Jamestown, Newport, Middletown, and Portsmouth. In order to better serve students and to take advantage of economies of scale, RISA will seek shared service opportunities with local school districts, as well as private school operators, with the goal of sharing the expense of transporting students to and from school. This approach should allow us to take advantage of the statewide busing contract. (We understand that Jamestown is not in the same transportation region as Newport, Middletown, and Portsmouth). All contracts entered into by the RISA will follow all statues of Rhode Island Law, and will follow the policies concerning procurement that will be developed by the RISA upon the granting of our charter. RISA recognizes that the costs of transportation may require fundraising to supplement district subsidies and it is recognized that those subsidies are almost gone.

Human resources, payroll, and purchasing functions

RISA's founding group is strongly currently inclined to share services whenever possible and to outsource functions such as human resources, payroll, and purchasing. RISA expects to solicit bids from sending towns, school districts, and other RI charter schools.

Information technology (I/T) and data management plan

RISA is inclined to outsource applications and to leverage cloud-based platforms. We may be able to source some applications from Aquidneck Island municipalities that are currently discussing their sharing of I/T applications. “Touch labor” is also likely to be outsourced and we are likely to solicit bids from sending towns, districts, and other charter schools.

One of RISA's founding members has over 20 years of I/T industry experience, including ten years designing complex software systems for federal agencies. RISA's applications will need to generate high quality, high fidelity data to give teachers, staff, and board members the kind of “actionable intelligence” on which they can make sound decisions.

Additional supplemental information

RISA's founding group is anxious for this uniquely focused school to be seen as a valued contributor to all of Rhode Island. We know this school can fill an important void in the lives of our earliest learners and their families. We know that there has been a recurring local discussion concerning school regionalization or unification. One of our members is participating in these policy level discussions as a member of the Newport city council.

The RISA founding group is singularly focused on delivering high academic achievement through an integrated STEAM curriculum that will be unique and potentially valuable to other districts. At the end of RISA's five year charter period, RISA would seriously entertain discussing a unification option with another traditional public school district or another public charter school.

X. Startup Timeline

The RISA founding team have created this detailed action plan with estimated dates through the end of 2015. Those tasks that are operational and whose timing won't be known until the school is opened are itemized in this plan without due dates.

The plan – informed by numerous charter school templates – covers key aspects of launching the school beginning with initial charter approval.

The start up timeline plan (on the next page) has the following major sub-sections

- Student enrollment and registration
- Human resources
- Program
- Finance
- Procurement
- Facilities
- Governance

	WORKPLAN: RISA STARTUP (notional)			Lead	Support	1-Sep	1-Oct	1-Nov	1-Dec	1-Jan	1-Mar	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep
	Student Enrollment & Registration																									
		Set enrollment deadlines and objectives		Head of School	Head of School					x																
		Refine and print collateral materials for families		Head of School						x																
		Recruit students		Head of School						----->																
			Present at churches, child care centers, etc	Head of School	Head of School					----->																
			Hand out flyers at supermarkets	Head of School	Head of School					x																
			Canvass neighborhood	Head of School	Head of School					x																
			Conduct info sessions	Head of School	Head of School					x																
			Identify other advertising vehicles if needed	Head of School	Head of School					----->																
		Conduct Lottery		Head of School							x															
		Register students		Operations Dir	Head of School							----->														
		Input all student info into PowerSchool		Operations Dir	Head of School									----->												
	HR	Hire Head of School									x															
			Advertise openings	Recruiter		----->																				
			Screen and interview candidates	Board				----->																		
			Conduct reference checks	Board	Recruiter					----->																
		Hire Operations Director									x															

WORKPLAN: RISA STARTUP (notional)				Lead	Support	1-Sep	1-Oct	1-Nov	1-Dec	1-Jan	1-Mar	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep
			Advertise openings	Recruiter			----->																			
			Screen and interview candidates	Board					----->																	
			Conduct reference checks	Board	Recruiter					----->																
		Hire educators																								
			Finalize staff plans	Board	RIDE approval							x														
			Select and train site hiring committee	Head of School							----->															
			Advertise openings	Recruiter							----->															
			Screen, interview and demo candidates	Head of School	Head of School							----->														
			Conduct reference checks	Head of School	Head of School										----->											
		Set compensation		Head of School	Operations Dir										x											
		Send offer letters		Recruiter												x										
		Conduct orientation		Head of School	Operations Dir												x									
	Program																									
		Conduct summer training		Academic Dir															----->							
		Identify key areas for coaching		Academic Dir																----->						
	Finance																									
		Develop 2015-2016 budget		Financial Analyst								----->														
		RI Auditor Gen approves business/finance plan		Head of School; Board	RI Auditor General approval						x															
		Review finance/accounting policies and practices		Financial Analyst								x														

WORKPLAN: RISA STARTUP (notional)				Lead	Support	1-Sep	1-Oct	1-Nov	1-Dec	1-Jan	1-Mar	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep
		Meet with District re: funds flow		Operations Dir												x										
	Procurement																									
		Secure FFE		Operations Dir								----->														
		Order curriculum materials		Head of School	Academic Dir									----->												
		Establish contracts with vendors as needed		Head of School	Operations Dir								----->													
	Facilities																									
		Identify building		Head of School	RIDE						x															
		Ensure building is renovated		Developer	Operations Dir							----->														
		Negotiate/coordinate daily operations as needed		Head of School	Operations Dir										----->											
	Governance																									
		Articles of Incorporation		Board	RI Secretary of State	x																				
		Establish Site Advisory Counsel		Head of School																		----->				
		Complete Needed MOUs		Head of School										----->												
		Accountability plan approvals		Head of School	RIDE							x														

XI. Variances

Variance request 1 – Board of Education C-5-2. Enrollment Lotteries

The Academy desires to use a lottery preference for students eligible for Free or Reduced-Price Lunch (FRPL). RISA intends to employ this preference to ensure that RISA enrolls a majority of FRPL-eligible students. Our desired FRPL target is 55%. This level is a critical requirement in order for RISA to source our desired blend of teaching talent and to demonstrate to expected critics, during the public hearing phase, that this proposed school seeks to mitigate community concerns concerning racial segregation of Middletown and Newport schools. (During the 2013 public hearing phase, one town council and two school committees adopted resolutions opposing the NCSA charter school proposing and explicitly included language highlighting racial segregation concerns). We look forward to working with the RIDE Office of Charter Schools on how to best conduct a weighted lottery to achieve our level of FRPL-measured diversity in a manner consistent with Rhode Island policies and leveraging the new January 2014 “Title V, Part B: Nonregulatory Guidance” from the U.S. Department of Education.

XII. Finance and Budget

Budget assumptions

The budget projection form reflects estimated, best case revenues and expected expenses over the 2016-2021 school year interval. A ten percent budget reserve is imbedded as an expense element, and our goal will be to invest budget surpluses into RISA's educational program and ongoing integrated STEAM curriculum development. We have made several assumptions to help shape our initial budget:

- The average per pupil total tuition reflected by RIDE guidelines and FY 2015 updates are accurate and can be held level into the future.
- The overall average per pupil tuition to the school will be at least held level over the five years of the charter.
- The school will pay 100% of the transportation costs for students.
- Significant, but attainable, private grant funding (or facility owner financing) may be needed to address hard to quantify (at this time) capital improvements. We have been educating ourselves over the last year on creative financing alternatives and note with interest that the City of Newport has recently retained a commercial real estate firm to begin marketing its surplus school buildings.

While we are optimistic that our targeted marketing and sales efforts, which has already yielded over 100 parental sign-ups via our web site, will fill all available seats, we have also run a more austere operational financial model shedding variable labor costs. This “what-if” exercise boosts our confidence that we could still open with a small footprint and still be positioned to withstand an array of financial pressures.

(a) Revenues. Our main revenue source will come from sending district per pupil tuition and is expected to be supplemented by modest, attainable levels of private foundation grants. In order to model the tuition across the period, we have used financial data from RIDE document “FY 2015 Local Share Per Pupil - Charter Schools.” Since our marketing initiatives began in January 2013, parents and foundations have already shown keen levels of interest in RISA's mission. The strong response and growing levels of awareness provides us with encouragement that our near-term enrollment targets of 150 students in Year 1 and 225 students in Year 2 are attainable. Initially we expect a majority of students to come from Newport. We have assumed that our active outreach efforts, coupled with weighted lottery preferences, will yield a student population where at least 51 percent will be eligible for Free Reduced Price Lunch (FRPL). On an annual basis, the increase in revenue will chiefly be a function of growth in the student enrollment base. We are hoping that our initial facility will be able to support an enrollment of up to 300 students which is the level targeted for Year 3. In Years 4 and 5, the addition of a second facility -- yet to be selected -- will create more capacity. Excess school facilities may become available during this period depending (1) on the outcome of current school district unification discussions between Newport and Middletown, and (2) the likely entry of commercial real estate developers who show interest in Newport's former school buildings.

(b) Expenses. With a lean administrative staffing model in mind, we see that instructional costs are still the largest cost element. We have assumed a student to teacher ratio of 25:1 to drive the

current five-year staffing model. Major uses of cash – not-reflected as a capital line item – could be pre-opening classroom capital improvements in Year 1 and then additional capital spend in Year 3 to accommodate additional enrollment growth. In an environment of low interest rates, developers and landlords may be able to finance our capital improvements via a five-year lease. Other commitments and leadership costs will be further controlled by leveraging part-time staff, dual-certified staff, and contracted support. In order to foster good relations with sending districts, we hope to lease available school and town buildings and to creatively outsource services to local towns and/or school districts.

Financial Management Plan

The Board ultimately will be responsible for the RISA's finances. The Board will elect a Treasurer with expertise in finance and/or accounting. The Treasurer will serve as Chair of the Finance Committee, and will work with the Head of School to ensure that an annual audit is completed. The Annual Operating Budget will be presented to the Board for approval. On a monthly basis, the actual Operating Statement will be compared to the Operating Budget and presented to the Board for their review. In addition, a Monthly and Annual Cash Flow Statement will be provided to show the cash requirements and the time periods when cash may be necessary from borrowing or fund raising.

The Head of School will be responsible for day-to-day financial operations and will meet with the Director of Operations at least weekly to discuss all issues related to finances including the spending plan and the cash flow analysis. The Director of Operations will be responsible for procurement of supplies, equipment and services and for supervision of the Bookkeeper and the Administrative Assistant. The Bookkeeper will be responsible for weekly data entry in the accounting software system, coordination of payroll with the payroll company, accounts payable, monitoring of the budget and cash flow.

The Head of School and the Treasurer will set up internal procedures to control finances in accordance with the relevant laws and regulations that govern charter schools within the State of Rhode Island. They will develop a financial control manual and an internal controls program that specify the financial control procedures, which will cover the roles and responsibilities of all staff involved with financial management, processes of budgeting and reporting, transaction approval, purchasing of services and procurement of goods, books and record keeping, issuing and signing checks, employees' expenses, payroll and benefits, and inventory management.

RISA will maintain the accounting records and related financial reports on the accrual basis of accounting. All records and reports will be consistent with the special purpose governmental unit requirements of the Governmental Accounting Standards Board (GASB). The Head of School and the Director of Operations will oversee data entry on a weekly basis. The Head of School and the Director of Operations will have access to the accounting system to be able to obtain immediate information on the current cash flow situation. To ensure a positive cash flow the Bookkeeper will provide the Head of School with a cash flow monthly projection report that will be updated weekly for the weekly Head of School-Director of Operations meetings. They will review the report and adjust the spending plan accordingly.

REQUIRED ATTACHMENT #9: Five-year budget projection is attached.

Required Attachment 1: Resumes of Founding Group

Stephen E. Arendt
Naval Academy Preparatory School
Newport, RI

Education

B.S. Physics, Wilkes University, Wilkes-Barre, PA 1966

M.S. Physics, Rensselaer Polytechnic Institute, Troy, NY 1973

ABD (inactive), Ph.D. Physics, Rensselaer Polytechnic Institute, Troy, NY

Professional

- Associate Dean and Registrar, Naval Academy Preparatory School, Newport, RI, 2005 - present
- Academic Dean, Naval Academy Preparatory School, Newport, RI, Aug 1978 – Aug 2005
- Science Supervisor, Naval Academy Preparatory School, Newport, RI, Nov 1973 – Aug 1978
- Teaching Assistant, Rensselaer Polytechnic Institute, Troy, NY, Aug 1966 – Nov 1973
- Research Technician, Wilkes University, Wilkes-Barre, PA, May 1964 – Aug 1966

Community Service

- Middletown, RI School District: PTA, School Improvement Team for High School, Superintendent's Advisory Council, Committees to Interview Prospective Faculty
- Middletown, RI, Member of PAQEM (Parents Advocating for Quality Education in Middletown)
- Middletown, RI Public Library: Member and Chair of Board of Trustees
- Town of Middletown, RI: Chair of Information Technology Advisory Committee
- RI Dept of Ed: Member of School Accountability for Learning and Teaching Team (SALT) to evaluate public schools:
 - Cranston High School East, 8 – 12 Jan 2001
 - Wickford Middle School, 22 – 26 Oct 2001
 - Newport Area Career and Technical Center, 22 – 26 Apr 2002
 - Shea Senior High School, 16 – 20 Oct 2006
 - Exeter-West Greenwich Junior High School, 28 May – 2 Jun 2008
 - Portsmouth Middle School, 27 Apr – 1 May 2009
- Governor of RI Panel on Mathematics and Science Education, invited member of two focus groups to advise panel on recommendations to improve science and technology programs in the RI public schools

Why RISA is important to me

Rhode Island STEAM Academy is an essential alternative tailored to the optimal development of students eager to learn in a STEAM focused curricular environment and passionate about accomplishment in STEAM disciplines throughout all grades to collegiate levels. Teachers will provide differentiated learning opportunities that encourage capable students to consistently achieve new heights of learning that exceed traditional grade-based expectations and achievement standards throughout all learning levels.

Karen Chang
315 Broadway, Unit 2
Newport, RI 02840

Education

University of California at Berkeley, PhD Science Education – Berkeley, CA, 2009

University of California at Berkeley, MS Chemistry – Berkeley, CA, 2001

State University of New York at Binghamton, BS Chemistry – Binghamton, NY, 2000

Professional

Chemistry Instructor, Naval Academy Preparatory School, Newport, RI – 2008 to present

- Help prepare underserved students for the United States Naval Academy through chemistry instruction and mentorship.

Professional Development Consultant, Knowles Science Teaching Foundation – 2011 to present

- Provide individualized mentorship to high school chemistry teachers in RI and MA.
- Led a workshop for new high school teachers on how to teach thermodynamics using a student-centered, guided-inquiry curriculum.

Graduate Student Researcher, UC Berkeley, Berkeley, CA – 2003 to 2008

- Designed, field-tested, and revised lessons and lab-based activities for the Living By Chemistry high school chemistry curriculum

Research Assistant, Exploratorium, San Francisco, CA – 2007 to 2008

- Assisted senior researchers in analyzing how visitors interacted with exhibits and how to improve their interactions.

Upper School Chemistry Teacher, The Calhoun School, NYC, NY – 2002 to 2003

Chemistry Teacher, Townsend Harris High School, Flushing, NY – 2002

Why RISA is Important to Me

The Rhode Island STEAM Academy is important to me as an educator and as a future parent. As an educator who believes that education should be a social equalizer, it's appalling to see the separation between the privileged and the underserved populations in Newport. Newport is so well known as a summer tourist destination for the wealthy, that the underserved population is easily forgotten. RISA will be dedicated to helping underserved children and their families who want high quality STEAM education.

Marco T. Camacho
55 Evarts Street, Newport, RI 02840
marcoforward1@gmail.com

Education

- Providence College, BA – 1999
- Rogers High School, Newport, RI – 1995

Political

- Newport City Council, 1st Ward (2013 – present)
- Additional duties include Newport School Committee Liaison, Newport-Middletown School Unification Board, East Bay Community Action Program, Naval Station Newport Liaison, North End Planning Committee

Professional

- New England Sports Marketing Group, LLC, Partner (2011 – present)
- Client partnerships include Friday Night Fights, Take-On Productions, and start-up venture Victory Combat Sports
- Real Estate Finance (2004 -2009)
- AVP Fixed Income and Account Executive for Wall Street banks Credit Suisse, Allied Capital, and Accredited Home Lenders (top IPO 2003)

Military

- United States Army, Rank: Captain (1999-2003 Active Duty)
- Infantryman, Airborne Ranger, Rifle Platoon Leader 1-503rd Infantry Regiment South Korea, Commander Rear Detachment Forces Task Force 1-87th Infantry during liberation of Afghanistan 2002

Elizabeth E. McManus Cullen
19 Bayside Ave
Newport, RI 02840

Education

- University of Rhode Island, BA English; 1982
- North Kingstown High School, 1978

Civic

- Member, Parent Teacher Organization, Thompson M.S., Newport, 2013-present
- President, The Point Association of Newport, 2010-present
- Parent Volunteer Coordinator, Cluny School, 2008-2012
- Vice President, Newport Public Education Foundation, 1999-2002
- Chair, City of Newport Personnel Appeals Board, 1998-1999
- Co-founder, Friends of Van Zandt Pier Inc, 1996-1999
- Events Chair, League of Women Voters, 1996-1999

Professional

- Club and Event Sales Manager, Locke Ober Cafe, 1989-1996, Boston, MA
- Ad Sales Manager, Upstate New York Region, Herron Cable, 1988-89, Utica, NY
- Substitute K-12 Teacher, Oneida County, 1986-1989, Utica, NY
- Manager, Clarke Cooke House, 1980-1984, Newport, RI

Personal

- Mother of Michael “Mac” Cullen, 10 yr old, Gr 5 student, Thompson M.S., Newport
- Host “mom” to 16 yr old Rotary Club exchange student from Germany attending Rogers H.S. 2013-2014

Michael J. Cullen
19 Bayside Ave
Newport, RI 02840

Education

- Harvard Business School, MBA, 1986
- University of California, Berkeley, BS Business Admin, 1978

Civic

- Founder/leader, NewportReady, emergency readiness group, 2012-present. Meetings with RIEMA executive director and Lt Gov on the use of FEMA “Whole Community” paradigm to improve disaster outcomes and to more effectively locate Alzheimer wanderers alive
- Founder/moderator/blogger, KnowingNewport, civic discussion blog, 2002-present
- VP, Newport Public Education Foundation, 2003-2005. Drove strategic planning discussions around need for vast improvements within local educational system
- Director, Rose Island Lighthouse Foundation, 1999-2002. Drove board discussions around tools and processes to create tighter bonds between organization and donor base
- Co-founder/officer, Friends of Van Zandt Pier Inc, 1996-present. Successfully highlighted plight of historic pier to city leadership which later secured \$300K in federal grant funding for renovation
- Member/chair, City of Newport Trust & Investments Commission, 1994-2003. Helped drive the local understanding of the hidden costs of “Other Post Employment Benefits” across city and school sectors. Within one year, Newport became the first RI city to undertake an OPEB actuarial study
- Member, City of Newport Information Technology Advisory Commission, 1995-1998. Drove the need for a much-needed revamp of the city's web site

Professional

- Software architect and business development executive, IBM Federal, 2003-2013
- Hardware/software sales, IBM Federal, 1995-2003
- Scientific/technical computing sales specialist, IBM, Boston, 1989-1995
- Radar system marketing and program manager, GE Aerospace, 1986-1989
- Intelligence officer/cyber warfare, US Air Force Reserve, 1986-1999
- F-111 navigator/weapon systems officer, US Air Force, US/UK, 1978-1984

Required Attachment 2: Resumes of Prospective Board Members

Please refer to Required Attachment 1 for the following resumes:

- Stephen Arendt
- Karen Chang
- Marco Camacho
- Elizabeth Cullen
- Michael Cullen

Required Attachment 3: Draft Bylaws

Section 1. General Provisions

1.1 Charter. The name and purposes of the RHODE ISLAND STEAM ACADEMY, INC (the “Academy”) shall be as set forth in its Charter, which Charter is granted by the State of Rhode Island Department of Education (“RIDE”), Rhode Island General Laws Chapter 16-77, and which may be amended from time to time. The Charter is hereby made a part of these bylaws, and the powers of the Academy and of its Board of Trustees, and all matters concerning the conduct and regulation of the affairs of the Academy, shall be subject to such provisions in regard thereto, if any, as are set forth in the Charter. In the event of any inconsistency between the Charter and these bylaws, the Charter shall be controlling. All references in these bylaws to the Charter shall be construed to mean the Charter granted by RIDE, as from time to time amended.

1.2 Location. The principal office of the Academy shall be located in the building of the Academy after school has commenced. Until that time, members of the Founding Group shall coordinate all start-up activities.

1.3 Fiscal Year. Except as from time to time otherwise determined by the Trustees of the Academy, the fiscal year of the Academy shall end on the last day of June in each year.

1.4 Corporate Seal. The common seal is, and until otherwise ordered and directed by the Board of Trustees shall be, an impression upon paper bearing the name of the Academy, the date “2014” and such other device or inscription as the Board of Trustees may determine.

Section 2. Board of Trustees

2.1 Powers. The Board of Trustees, also known as the Board of Directors, shall oversee the affairs of the Academy and shall exercise all of the powers of the Academy, except as otherwise provided by law, by the Charter, or by these bylaws. The Board of Trustees reserves to itself exclusively the power:

- (a) to purchase, sell, or lease real property,
- (b) to pledge, assign, create liens on or security interests in the real or personal property of the Academy ,
- (c) to establish, execute and modify investment policies,
- (d) to amend the bylaws following a two-thirds majority vote
- (d) to determine, execute and modify the educational policy of the Academy ,
- (e) to appoint or remove the Academy Executive Director(s), and
- (f) to delegate, from time to time, powers to the Academy Executive Director(s) in accordance with these bylaws except as otherwise provided by law or by the Charter.

2.2 Number of Trustees. The Board of Trustees shall consist of not less than FIVE nor more than fifteen individuals (excluding ex-officio and honorary members). The Board of Trustees may include, but is not limited to, a parent/guardian representative, the sponsor’s representative, interested members of

the community, a faculty representative, and the Academy Executive Director(s). The Academy Executive Director(s), the faculty representative, and the parent representative, respectively, shall serve as ex-officio members of the Board of Trustees without power to vote.

2.3 Term of Office of Trustees. The term of office of a trustee (also known as a director) shall be one, two, or three years or until his or her successor is elected and qualified. Terms of office shall be staggered and each group shall be as nearly equal in number as possible. A trustee may serve for two consecutive terms and shall be eligible for reelection to the Board after a one-year hiatus or at the pleasure of the Board, if longer terms are desired. The term of office of the Academy Executive Director(s) as a trustee shall correspond with his or her tenure in that position. The term of office of the faculty representative as a trustee shall be two years. The term of office of the parent representative shall be one year.

2.4 Election of Trustees. Trustees shall be elected by the Board of Trustees at any meeting of the Board of Trustees. A trustee elected to fill an unexpired term shall have tenure only to the end of that term.

2.5 Resignation and Removal. Any Trustee may resign by delivering a written resignation to the Chair or the Clerk, as defined herein, or to the Academy at its principal office. Such resignation shall be effective upon receipt unless it is specified to be effective at some later time. To facilitate the election of new Trustees, the Academy formally encourages Trustees intending to resign or to decline nomination to provide notice of the Trustee's intent before June. Any Trustee may be removed from office with or without cause by an affirmative vote of a majority of the Trustees then in office. A Trustee may be removed for cause only after reasonable notice and an opportunity to be heard by the Board of Trustees.

2.6 Vacancies. Any vacancy in the Board of Trustees may be filled by vote of a majority of the Board of Trustees then in office. The Board of Trustees may exercise all their powers notwithstanding the existence of one or more vacancies in the Board. Vacancies in any office may be filled by the Board of Trustees.

Section 3. Meetings of the Trustees

3.1 Open Meetings Law. While operating under a State of Rhode Island Charter, Rhode Island General Laws Chapter 16-77, all meetings of the Trustees shall be conducted in accordance with Rhode Island General Laws Chapter 42-46.

- (a) no quorum of the Board of Trustees shall meet in private for the purpose of deciding on or deliberating toward a decision on any matter and
- (b) no executive session shall be held until:
 - (i) the Board of Trustees shall have first convened in an open session for which notice shall have been given in accordance with law,
 - (ii) a majority of the Trustees at such meeting shall have voted to go into executive session,
 - (iii) the vote of each trustee shall have been recorded on a roll call vote and entered into the minutes, and
 - (iv) the Chair (or other person presiding over the meeting) shall have cited the purpose of the executive session and shall have stated whether or not the Board of Trustees shall

reconvene after the executive session. Executive sessions may be held only for purposes permitted by law.

3.2 Regular and Special Meetings. Regular meetings of the Board of Trustees may be held at such times as the Board of Trustees may determine, at least four times annually. Special meetings may be called by the Chair at any time and shall be called by the Clerk or his or her designee following a written application of two or more voting members of the Board of Trustees.

3.3 Meetings Using Communications Equipment. Unless otherwise provided by law or the charter, trustees may participate in a meeting of the Board of Trustees by means of a conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other at the same time, and participation by such means shall constitute presence in person at a meeting.

3.4 Annual Meeting. The Trustees shall meet annually in the month of June at the principal office of the Academy or at such place and at such time as the Board of Trustees shall determine, except that such date shall not be a legal holiday. Notice of the annual meeting setting forth the date, time, and place of any such meeting shall be mailed to all Trustees at the Trustee's usual or last known business or home address not less than seven (7) days prior to the date of the annual meeting.

3.5 Quorum. A majority of the Trustees then in office shall constitute a quorum, but a lesser number may, without further notice, adjourn the meeting to any other time. At any meeting of Trustees at which a quorum is present, the vote of a majority of those Trustees present shall decide any matter unless the Charter, these bylaws, or any applicable law requires a different vote.

3.6 Notice of Meetings. Public notice of meetings shall be given as required by law. Notice of the date, time, and place of all regular and special meetings of the Trustees shall be given to each Trustee by the Clerk or, in case of the death, absence, incapacity or refusal of the Clerk, by the officer or one of the Trustees calling the meeting. Such notice shall be given to each Trustee in person, by mail or by telephone, facsimile transmission, or electronic mail sent to such Trustee's usual or last known business or home address at least seven (7) days in advance, unless shorter notice is adequate under the circumstances.

3.7 Parliamentary Authority. The rules contained in the current edition of Robert's Rules of Order Newly Revised shall govern the Academy in all cases to which they are applicable and in which they are not inconsistent with the bylaws of the Academy, or any special rules of order the Academy may adopt.

Section 4. Officers of the Board

4.1 Numbers and Qualifications. The officers of the Academy shall be a Chair (also known as President), Vice Chair (also known as Vice President), Treasurer, Clerk (also known as Secretary), and such other officer, if any, as the Board of Trustees may determine. An individual should not hold more than one office at the same time.

4.2 Election and Tenure. The Chair, Vice Chair, Treasurer, and Clerk shall be elected annually by

the Board of Trustees at the initial corporate meeting and the annual meeting. Other officers, if any, may be elected by the Board of Trustees at any time. The fact that an individual is currently serving in any office shall not create any presumption that such individual shall be nominated for such office in any subsequent year. If the office of Chair, Vice Chair, Treasurer, or Clerk becomes vacant, the Trustees shall elect a successor. If any other office becomes vacant, the Trustees may elect a successor. Each such successor shall hold office for the unexpired term and, in the case of the Chair, Vice Chair, Treasurer, and Clerk, until a successor is chosen and qualified, or in each case, until the officer dies, resigns, is removed, or becomes disqualified.

4.3 Resignation and Removal. Any officer may resign by delivering a written resignation to the Chair or the Clerk or to the Academy at its principal office. Such resignation shall be effective upon receipt unless it is specified to be effective at some later time. Any officer may be removed from office with or without cause by an affirmative vote of a majority of the Trustees then in office. Any officer may be removed for cause only after reasonable notice and an opportunity to be heard by the Board of Trustees.

4.4 Chair and Vice-Chair of the Board. The Trustees may elect a Chair and Vice-Chair of the Board of Trustees. Except as otherwise provided by law, the Charter or these bylaws, the Chair and Vice-Chair shall hold office until the next annual meeting of the Trustees or the special meeting held in lieu thereof, and thereafter until their respective successors are chosen and qualified, unless a shorter term is specified in the vote electing or appointing them. The fact that an individual is currently serving as Chair or Vice-Chair shall not create any presumption that such individual shall be nominated for either such position in any subsequent year. The Chair shall preside at all meetings of the Board of Trustees, except as the trustees otherwise determine. The Chair shall have such other duties and powers as the Board of Trustees or Executive Committee shall determine. With the approval of the Executive Committee, the Chair shall appoint all Standing and Special Committees, may fill vacancies in these Committees, and may remove any member of these Committees for any reason. The Chair may call meetings of the Executive Committee, and shall call such meetings at any request of two members of the Executive Committee. In the absence of the Chair, or if at any time the office of Chair is vacant, the Vice Chair may discharge any or all of the duties of the Chair including the Chair's functions as a member and chair of the Executive Committee.

4.5 Treasurer. Subject to the direction and control of the Board of Trustees, the Treasurer shall have general oversight of the financial affairs of the Academy, shall provide monthly reports to the Board of Trustees on the financial condition and affairs of the Academy and shall oversee all filings required by the State of Rhode Island, the Internal Revenue Service, or any other governmental entity. The Treasurer shall have such other powers and duties as are usually incident to that office and as may be vested in that office by these bylaws or by the Trustees.

4.6 Clerk. The Clerk shall record and maintain records of all proceedings of the Trustees in a book or series of books kept for that purpose and shall give such notices of meeting of Trustees as required by the Charter, these bylaws, or by law. The Clerk shall distribute to the members of the Board of Trustees copies of any minutes of prior meetings for approval. The Clerk shall have such other powers and duties as are usually incident to that office and as may be vested in that office by these bylaws or by the trustees. The Clerk shall be a resident of the State of Rhode Island, unless the Academy shall appoint a registered agent for the service of process. In the absence of the Clerk from any meeting of Trustees, a temporary Clerk designated by the person presiding at the meeting shall perform the duties of the Clerk.

4.7 Other Officers. Other officers shall have such duties and powers as may be designated from time to time by the trustees.

Section 5. Committees

5.1 Appointment and Duties. The Board of Trustees shall annually appoint such standing and special committees as the Board may deem proper and prescribe their membership, powers, and duties. The Board of Trustees, or the Chair acting under the authority of the Board, may appoint such other boards and committees as the Board may deem necessary.

5.2 Standing Committees. Standing committees of the Board may include but are not limited to the Executive Committee, Finance Committee, the Development Committee, and the Governance Committee. Each Committee shall hold office for one year and until a new Committee is appointed.

5.3 The Executive Committee. The Executive Committee shall consist of not less than THREE nor more than eight trustees, and may include the Chair, Vice Chair, Treasurer, and Academy Executive Director(s) ex officio. The Chair shall be the Chairman of the Executive Committee. A majority of the members of the Executive Committee shall have power to do all things deemed by them necessary for, or conducive to, the welfare of the Academy that are not delegated to other committees or officers nor contrary to the bylaws or votes of the Board of Trustees, or any applicable to the foregoing. The Executive Committee may exercise all the powers of the Board of Trustees except the election of trustees, the election of Chair, Vice-Chair, Treasurer, or Clerk, the selection of Academy Executive Director(s), or the amending of the bylaws. The Executive Committee shall make reports of their doings to the Board of Trustees.

5.4 The Finance Committee. The Finance Committee shall include not less than three trustees, and the Chair shall appoint its Chair. The Finance Committee shall be responsible for overseeing planning, implementing, and monitoring of the budget.

5.5 The Development Committee. The Development Committee shall include not less than three trustees, and the Chair shall appoint its Chair. The Development Committee shall be responsible for overseeing planning, implementing, and monitoring all fundraising programs. The Development Committee shall assist in the advancement of the Academy to all its constituencies.

5.6 The Governance Committee. The Governance Committee shall include not less than three trustees, and the Chair shall appoint its Chair. The Governance Committee shall oversee the quality of the trustees and trustees' self-management. The Governance Committee shall select and nominate all candidates for the Board of Trustees, nominate Board officers, oversee trustee orientation and education, and conduct periodic evaluations of individual trustees and the trustees as a whole.

5.7 Academy Executive Director(s). The Academy Executive Director(s) may be ex-officio member(s) of all Standing and Special Committees.

Section 6. Academy Executive Director(s)

6.1 Selection. The Academy Executive Director(s) shall be appointed by the Board of Trustees and shall serve at the pleasure of the Board of Trustees and shall receive such compensation as the Board may direct. The Board of Trustees shall conduct an annual review of the Academy Executive Director(s).

6.2 Duties. The Academy Executive Director(s) shall carry out the policies established by the Board of Trustees and shall be directly responsible to the Board of Trustees. The Academy Executive Director(s) shall have general management of the artistic, academic, and administrative operations of the Academy and shall prescribe and direct the course of study, the discipline to be observed, the assessment of student performance, and shall be responsible for all required reporting to the State of Rhode Island. The Academy Executive Director(s) shall prepare an annual budget for submission to the Board. The Academy Executive Director(s) shall employ and discharge all personnel, prescribe their duties and terms of office, shall set their salaries within the minimum and maximum limits established by the Board of Trustees, and shall conduct annual reviews of all personnel.

Section 7. Compensation and Personal Liability

7.1 Compensation. No Trustee or officer shall receive any compensation for services rendered as a trustee or officer. Notwithstanding the foregoing, any Trustee or officer may receive reasonable compensation for services rendered as an employee or subcontractor of the Academy and any Trustee or officer may, if authorized by the Academy Executive Director(s) or the Board of Trustees, be reimbursed for necessary expenses, including travel expenses, reasonably incurred by the Trustee or officer in the performance of duties as a trustee or officer. Any Trustee must make full disclosure to other members of the Board of any compensation received.

Section 8. Miscellaneous Provisions

8.1 Execution of Instruments. All contracts, deeds, leases, bonds, notes, checks, drafts and other instruments authorized to be executed by an officer of the Academy on its behalf shall be signed by both the Academy Executive Director(s) and the Treasurer except as the Trustees may generally or in particular cases otherwise determine. Any recordable instrument purporting to affect an interest in real estate, executed in the name of the Academy by the Academy Executive Director (s) and the Treasurer, who may not be one and the same person, shall be binding on the Academy in favor of a purchaser or other person relying in good faith on such instrument notwithstanding any inconsistent provisions of the Charter, bylaws, resolutions or votes of the Academy.

8.2 Corporate Records. The records of all meetings of trustees, the names and addresses of the Trustees and officers of the Academy, and the originals or attested copies of the Charter and the bylaws of the Academy shall be kept in the State of Rhode Island at the principal office of the Academy or of the Clerk, but such corporate records need not all be kept in the same office.

8.3 Guarantees and Suretyships. The Academy shall make no contracts of guarantee or suretyship.

Required Attachment 4: School Leader Job Description

School leader job description

- Pursue the vision and execute the mission of the school;
- As Head of School provide leadership and direction to staff (including Director of Operations, Curriculum and Professional Development team, and other administrative staff, consultants, administrative assistant, and all teachers);
- Supervise and observe all instructional practices in the school, including coaching and mentoring directly or through other staff and/or professional development programs;
- Hire, evaluate, and terminate staff; except that such action with respect to the Director of Operations position shall be subject to review and/or approval by the Board;
- Administer scheduling, enrollment and curriculum;
- Serve as liaison to the Board, including providing formal and informal reports to the Board and RI Department of Education;
- Prepare materials in conjunction with Director of Operations for Board meetings, including student academic achievement data based on comparative and longitudinal measures;
- Implement and follow policies and procedures;
- Provide a safe environment for learning;
- Ensure proper budgeting, accounting, auditing, and financial planning.

**Required Attachment 5: Audit of Managing/Partnering Entity
(if applicable)**

This item is not applicable to the RISA proposal.

**Required Attachment 6: Annual Report of Managing/Partnering
Entity (if applicable)**

This item is not applicable to the RISA proposal.

**Required Attachment 7: Draft Term Sheet or Contract with
Managing/Partnering Entity (if applicable)**

This item is not applicable to the RISA proposal.

Required Attachment 8: Draft School Calendar

RISA's draft calendar for a 2014 - 2015 school year is the projection of the Middletown Public Schools 2013 - 2014 Calendar shown below. In order to maximize opportunity for the sharing of services, we intend to synchronize our calendar with the calendar adopted by the Middletown and Newport school systems. We are aware that the Newport school system is currently contemplating major changes to their 2014 - 2015 calendar.

Middletown Pubic Schools 2013 - 2014 Calendar

SEPTEMBER				
M	T	W	T	F
X	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30				

NOVEMBER				
M	T	W	T	F
				1
4	5	6	7	8
X	12	13	14	15
18	19	20	21	22
25	26	27	X	X

JANUARY				
M	T	W	T	F
		X	2	(SCHOOL DAY)
6	7	8	9	10
13	14	15	16	17
X	21	(SCHOOL DAY)	23	24
27	28	29	30	31

MARCH				
M	T	W	T	F
3	4	5	6	7
10	11	12	13	14
17	18	19	20	21
24	25	26	27	28
31				

MAY				
M	T	W	T	F
			1	2
5	6	7	8	9
12	13	14	15	16
19	20	21	22	23
X	27	28	29	30

AUGUST	
30 - New Teacher Orientation-Full Day	
SEPTEMBER (18 Days)	
2 - Labor Day - NO SCHOOL	
3 - Teacher Workshop-Full Day	
4 -Teacher Professional Day	
5 - First Day of School (K-12)	
5 - Rosh Hashanah	
OCTOBER (22 Days-Cumulative 40)	
14 - Columbus Day - NO SCHOOL	
7-11 - Gr 9-12 First Quarter Interims	
21-25 - Gr K-8 First Trimester Interims	
NOVEMBER (18 Days-Cumulative 58)	
7 - Gr 9-12 First Quarter Ends (45 Days)	
11 - Veterans' Day - NO SCHOOL	
28-29 -Thanksgiving Break -NO SCHOOL	
DECEMBER (15 Days-Cumulative 73)	
3 - Gr K-8 First Trimester Ends (60 Days)	
9-13- Gr 9-12 Second Quarter Interims	
21-31 - Christmas Vacation - NO SCHOOL	
JANUARY (19 Days-Cumulative 92)	
1 - New Year's Day - NO SCHOOL	
20 - Martin Luther King Day -NO SCHOOL	
27- Gr 9-12- 2nd Quarter Ends (45 Days)	
27-31 - Gr K-8 Second Trimester Interims	
FEBRUARY (13 Days-Cumulative 105)	
17-21 - Winter Vacation - NO SCHOOL	
MARCH (21 Days-Cumulative 126)	
3-7- Gr 9-12 Third Quarter Interims	
17 -Gr K-8 2nd Trimester Ends (60 Days)	
APRIL (16 Days-Cumulative 142)	
7 - Gr 9-12 Third Quarter Ends (45 Days)	
18 - Good Friday - NO SCHOOL	
21-25 - Spring Vacation - NO SCHOOL	
MAY (21 Days-Cumulative 163)	
12-16 - Gr K-8 Third Trimester Interims	
19-23 - Gr 9-12 Fourth Quarter Interims	
26 - Memorial Day - NO SCHOOL	
JUNE (17 Days-Cumulative 180)	
14 - High School Graduation	
24 - Last Day of School (180th Day)	
25 - (Make-Up Day)	

OCTOBER				
M	T	W	T	F
	1	2	3	4
7	8	9	10	11
X	15	16	17	18
21	22	23	24	25
28	29	30	31	

DECEMBER				
M	T	W	T	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
X	X	X	X	X
X	X			

FEBRUARY				
M	T	W	T	F
3	4	(SCHOOL DAY)	6	7
10	11	12	(SCHOOL DAY)	14
X	X	X	X	X
24	25	26	27	28

APRIL				
M	T	W	T	F
	1	2	3	4
7	8	9	10	11
14	15	16	17	X
X	X	X	X	X
28	29	30		

JUNE				
M	T	W	T	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30				

Required Attachment 9: Five-Year Budget Projection – Revenues

STATE OF RHODE ISLAND CHARTER SCHOOL OPERATING BUDGET PROJECTIONS

Charter School:

Rhode Island STEAM Academy

		Implementation and Operations				
		FY2016	FY2017	FY2018	FY2019	FY2020
MAJOR ASSUMPTIONS						
A	Average local aid per pupil	10,655.20	10,655.46	10,655.20	10,655.35	10,655.20
B	Average state aid per pupil	3,822.20	3,822.20	3,822.20	3,822.20	3,822.20
C	Student Enrollment	150	225	300	375	450
D	Gross Square Footage (GSF) of facility	20,471	28,278	36,085	43,892	51,700
E	Staffing					
	E1. School Principals/Asst Principals	1.0	1.0	1.0	2.0	2.0
	E2. School Support Staff	2.0	3.0	4.0	5.0	6.0
	E3. Executive Director/Superintendent					
	E4. Deputies/Administrators					
	E5. Program/Operations Support Staff	1.0	1.0	1.0	1.0	1.0
	E6. Teachers	6.0	9.0	12.0	15.0	18.0
	E7. Paraprofessionals	6.0	9.0	12.0	15.0	18.0
	E8. Pupil Support	2.0	2.0	2.0	2.0	2.0
	E9. Teacher Support	2.0	2.0	2.0	2.0	2.0
	E10. Program Management	1.0	1.0	1.0	1.0	1.0
	E11. Special Services					
	E12. Facilities Maintenance	1.0	1.0	1.0	2.0	2.0
F	Staff FTE	22.0	29.0	36.0	45.0	52.0
	Subtotal:					
OPERATING REVENUES						
1	Local Revenue	1,598,280.00	2,397,478.00	3,196,560.00	3,995,758.00	4,794,840.00
2	State Revenue	573,329.80	859,994.70	1,146,659.60	1,433,324.49	1,719,989.39
3	Grants - Charter Schools Program	75,000.00	125,000.00			
4	Grants - Private	150,000.00	125,000.00	100,000.00	100,000.00	100,000.00
5	Federal formula funds (inc. Title I, III and IDEA)	300,000.00	45,000.00	60,000.00	75,000.00	90,000.00
6	Capital Projects Funds					
7	Other:					
8	TOTAL OPERATING REVENUES	2,696,609.80	3,552,472.70	4,503,219.60	5,604,082.49	6,704,829.39

Required Attachment 9: Five-Year Budget Projection – Expenses

	FY2016	FY2017	FY2018	FY2019	FY2020
OPERATING EXPENDITURES					
School Management					
9 Salaries: Principals and Assistant Principals	100,000.00	102,000.00	104,000.00	106,000.00	108,000.00
10 Salaries: Support Staff	30,000.00	31,000.00	64,000.00	132,000.00	136,000.00
11 School Office	10,000.00	12,000.00	14,000.00	16,000.00	18,000.00
12 Other:					
13 Subtotal:	140,000.00	145,000.00	182,000.00	254,000.00	262,000.00
Program/Operations Management					
14 Salaries: Executive Director or Superintendent					
15 Salaries: Deputies and Administrators					
16 Salaries: Support Staff					
17 Legal	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00
18 School Board	15,000.00	16,000.00	17,000.00	18,000.00	19,000.00
19 Business Operations	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00
20 Information Management and Technology	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00
21 Other:					
22 Subtotal:	48,000.00	49,000.00	50,000.00	51,000.00	52,000.00
Instruction					
23 Salaries: Teachers	360,000.00	553,000.00	756,000.00	969,000.00	1,192,000.00
24 Salaries: Paraprofessionals	270,000.00	415,000.00	567,000.00	727,000.00	894,000.00
25 Stipends and Bonuses	69,000.00	106,000.00	139,000.00	178,000.00	219,000.00
26 Pupil-Use Technology, Hardware, and Software	60,000.00	75,000.00	90,000.00	105,000.00	120,000.00
27 Instructional Materials Supplies	30,000.00	37,000.00	45,000.00	52,000.00	60,000.00
28 Other:					
29 Subtotal:	789,000.00	1,186,000.00	1,597,000.00	2,031,000.00	2,485,000.00
Instructional Support					
30 Salaries: Pupil Support	105,000.00	107,000.00	109,000.00	111,000.00	113,000.00
31 Salaries: Teacher Support	150,000.00	153,000.00	156,000.00	159,000.00	162,000.00
32 Salaries: Program Management	60,000.00	62,000.00	64,000.00	66,000.00	68,000.00
33 Salaries: Special Services	75,000.00	112,000.00	149,000.00	186,000.00	223,000.00
34 Guidance and Counseling					
35 Library and Media	10,000.00	2,000.00	2,000.00	2,000.00	20,000.00
36 Extracurricular	30,000.00	45,000.00	60,000.00	75,000.00	90,000.00
37 Student Services, Outreach, Recruitment	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00
38 Student Health Services	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00
39 Academic Interventions	20,000.00	30,000.00	40,000.00	50,000.00	60,000.00
40 Curriculum Development	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
41 In Service, Staff Development, and Support	9,000.00	12,000.00	15,000.00	18,000.00	21,000.00
42 Assessment	4,000.00	6,000.00	8,000.00	10,000.00	12,000.00
43 Other:					
44 Subtotal:	471,000.00	537,000.00	611,000.00	685,000.00	777,000.00
Operations					
45 Salaries: Facilities Maintenance	30,000.00	30,000.00	30,000.00	60,000.00	60,000.00
46 Transportation	76,000.00	96,000.00	116,000.00	232,000.00	252,000.00
47 Food Services	123,000.00	184,000.00	245,000.00	306,000.00	367,000.00
48 Safety	15,000.00	16,000.00	17,000.00	18,000.00	19,000.00
49 Building Upkeep and Maintenance	25,000.00	26,000.00	27,000.00	28,000.00	29,000.00
50 Maintenance Contracts	5,000.00	6,000.00	7,000.00	8,000.00	9,000.00
51 Utilities	20,000.00	30,000.00	40,000.00	60,000.00	70,000.00
52 Lease	240,000.00	336,000.00	432,000.00	528,000.00	612,000.00
53 Debt Service					
54 Capital Projects					
55 Other:					
56 Subtotal:	534,000.00	724,000.00	914,000.00	1,240,000.00	1,418,000.00
Other Obligations					
57 Fringe Benefits	354,000.00	469,000.00	597,000.00	725,000.00	887,000.00
58 Insurance (non-employee)	25,000.00	30,000.00	35,000.00	40,000.00	45,000.00
59 Retiree Benefits					
60 Purchased Management Services					
61 Other:					
62 Subtotal:	379,000.00	499,000.00	632,000.00	765,000.00	932,000.00
Community Services					
63 Community Service Operations					
64 Other:					
65 Subtotal:	0.00	0.00	0.00	0.00	0.00
66 Budgeted Contingencies	272,000.00	352,000.00	450,000.00	560,000.00	670,000.00
67 TOTAL OPERATING EXPENDITURES	2,633,000.00	3,492,000.00	4,436,000.00	5,586,000.00	6,596,000.00
68 SURPLUS/(DEFICIT)	63,609.80	60,472.70	67,219.60	18,082.49	108,829.39

Voluntary Attachment 10: Curriculum and Professional Development Team Job Description

Curriculum and Professional Development (CPD) Team Job Description

The CPD Team will consist of two specialists, a STEM Education specialist and an Art Education specialist. Both specialists will ideally have doctorates in their respective fields and have experience teaching in elementary school settings as well as conducting educational research.

- Lead a dynamic, on-going research program to:
 - develop a theoretical framework for the design of STEAM curriculum; outline the best practices for STEAM pedagogy and discern the distinctions that differentiate STEAM from STEM pedagogy.
 - design STEAM project-based learning curriculum that is aligned with current state and national science, math and ELA standards. Collaborate with established STEM curriculum research organizations, such as Project Lead the Way and Full Option Science System, to create STEAM versions of the curriculum.
- Collaborate with the Head of School to hire and supervise teachers, and to enhance the professional culture by leading RISA's professional learning community.
- Provide professional development to the teachers at RISA. Train and mentor the teachers through the modeling of teaching methods involving active learning, the evaluating of instruction from classroom observations, and the provision of feedback to teachers to improve their practice and development.
- Collaborate with the teachers to improve the STEAM curriculum, lessons, and activities.
- Develop assessments that are specific to a STEAM curriculum. Analyze the assessment data to ensure that RISA students are being placed in appropriate developmental learning experiences to achieve STEAM learning goals, and use the data to improve STEAM curriculum.
- Foster relationships with the local education community by sharing research findings and STEAM curriculum with interested schools; act as a resource for local schools that are interested in starting a STEAM program.
- Foster relationships with local universities such as RISD, BROWN, RIC, URI, and Worcester Polytechnic to expand and strengthen RISA's STEAM Education Research program, and to establish RISA as a vital member of the emerging STEAM education ecosystem.
- Attend STEAM education-related conferences to present research findings, learn about the newest developments, participate in establishing and implementing STEAM accreditation standards, and build relationships with other research groups across the country such as those in California.

Appendix A: Sample STEAM Unit and Activity

Unit Title: The Secret Life of Plants

STANDARDS

From NGSS

Targeting GQ#1 and #2:

1-LS3-1 (Heredity: Inheritance and Variation of Traits) Making observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Targeting GQ#2:

1-LS1-1 (From Molecules to Organisms: Structures and Processes) Use materials to design a solution to a human problem mimicking how plants and/or animals use their external parts to help them survive, grow and meet their needs.

Common Core Math:

Targeting GQ#1:

Measure lengths indirectly using iterating length units.

CCSS.MATH.CONTENT.1.MD.A.1

Order three objects by length; compare the lengths of two objects indirectly by using a third object.

CCSS.MATH.CONTENT.1.MD.A.2

Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Represent and interpret data.

CCSS.MATH.CONTENT.1.MD.C.4

Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many are in each category, and how many more or less are in one category compared to another category.

Primary Curriculum Subject: Heredity: Inheritance and Variation of Traits

Integrated Curriculum Subject: Math: Measurement and Data Analysis

Primary Art Form: Drawing + Sculpture

Integrated Art Form: Design thinking, scientific illustration

Transfer Goal:

1) Students will observe, collect data, and analyze the growth of their plants so that in the future they can examine a variety of living things in different stages of their lives, and draw conclusions about which are related (in the same family) and which are not.

2) Students will be able to describe how the different parts of the plants have specialized tasks, so that in the future they will be able to look at living systems to find examples of design solutions that work within constraints while being able to survive, grow and meet their needs.

Enduring Understandings:

- Plants are not all the same.
- Plants have different adaptations to help them survive.
- Diversity makes our lives possible.
- We are all responsible for the care of the world.
- We operate within a set of natural laws.

Essential Questions:

- Why do plants differ from generation to generation?
- How can we record differences to give us data for an experiment?
- What is the benefit of plants having different structures from each other?
- How do we help plants survive?
- How do plants help themselves?

Learning Outcome/Standards:

Content/Knowledge: Students will know that...

- Plants are unique and possess different features that perform special tasks, adaptations that help them survive
- Plants need healthy, intact habitats-locally and globally
- Young plants have plant parts that are similar to but not the same as older plants
- The shape and size of a plant's leaves and flower correlate to how they reproduce and in what habitat they live
- Plants are a part of the web of life
- Scientific drawings are different from artistic interpretations
- Scientists/ecologists are influential in teaching people about plants
- Plants share commons with people around the world, which has an impact on the plant.
- Humans have an impact on plants
- Plants grow and change. There are stages to the life cycle of a plant.

Skills: Students will be able to...

- Compare colors/flowers/leaves of one plant to the other and use the comparisons to make an evidence based account for natural phenomena
- Observe plants around them
- Order plants by length and measure the length of objects as a whole number of length units
- Practice contour drawing and scientific drawing
- Ask questions
- Identify and distinguish research questions vs. investigable questions.
- Design investigations
- Conduct investigations
- Organize, represent and analyze data to make predictions
- Communicate Findings

- Articulate importance of trails
- Articulate Shape names
- Identify harms and brainstorm/develop service learning project that helps strengthen plants growth/stability in its environment. Optionally, decide to educate others about the environment's impact on plants

Performance Criteria:

Assessment: ongoing through entire unit

Diagnostic: Record student observations of plants during first walk near school.

Formative: Students are able to collect data and compare differences in plants found at Roger Williams in groups

Summative: In the designs to protect plants, students are able to articulate why they are important; how the plant grows; and how the protective design will minimize human impact on the natural world. They will present this information to peers, faculty and parents

Unit Overview

Week One/Two:

1. Nature walk nearby: Where do we find plants? What do you think plants need in order to grow? How many different plants can you see (and draw).
2. Guest speaker: botanist who can talk about different plants and how they make those observations
3. Talk about contour line drawing and Ellsworth Kelly, Maria Sibylla Merian and Vincent van Gogh to see how plants have inspired many artists.
4. Class comes up with guidelines for how to ID different plants.
5. In pairs or small groups, students are given a region for trip to arboretum (Roger Williams) and use class criteria to collect data about plants in scientist notebook.
6. Groups are further mixed to share data and compare their findings when back in classroom. Students will report back findings to entire class.

Week Three/Four:

1. Students decide on what they will need in order to grow their own plants.
2. Students are assisted in researching what all plants need to grow. Compare with what humans need to grow.
3. Students brainstorm best way to have individual plants (planters) and where to put them in class (design challenge). Optional art project is clay coil pots.
4. Students make expressive drawings (Van Gogh) and scientific drawings (Merian) of mother plant.
5. Students receive seed in class.
6. Students see time-lapse video and make predictions about what might happen overnight and into the next day. (They will continue to make a prediction before going home each day and make an observation each morning...)
7. Record observations and take measurements in science notebook each day.

Week Five/Six:

1. Students take a trail walk with a park guide.
2. Discuss why there is a trail through parks. Who makes the trails?
3. Guest speaker - park ranger talks about endangered plants and importance of trails.
4. Discussion of plant adaptations that have helped plants survive (i.e. thorns, deep roots) both natural and human impacts.
5. Students design plans to help plants in parks or yards or street plants.
 - a. Create a play.
 - b. Design a structure.
 - c. Create a poster.

Week Seven/Eight:

1. Students take picture of final plant.
2. Use tracing paper over image to break down into basic shapes.
3. Name shapes and cut out of paper or cardboard (or wood).
4. Construct sculpture inspired by the shapes in their plant. Could be a new type of plant or a structure for a plant.
5. Students incorporate a feature of the plants that they learned about in class as a protective or survival aspect of their creation

Example Activity

Intro: After spending time earlier in the week taking investigation walks to look at plants around the school and the yard/block, class comes up with a way to scientifically record information about a plant.

Teacher Asks: What are some ways we can record information about a plant that we want to know more about? What should we pay special attention to? What tools will we need? How will we discuss our findings?

Students Brainstorm: Students discuss the most effective ways to study the plant, including but not limited to the color, size and shape of their leaves, the plant height, etc. and whatever interesting things come up with, as they always do.

Teacher Situates: Teacher lets students know that when they are in Roger Williams arboretum, they will gather information to make comparisons later on. Teacher lets them know that there are placards with information about which they can ask an adult chaperone to help explain. Divide students into groups. Issue a camera to one student from each group in order to record any observations that student may want to later share with the group.

Students Do: While at Roger Williams Park, students will work in small groups, assisted by adult chaperones, to record data. They can also interview the gardener from the area if they have further questions.

Students Prepare: The following day, students will present their information to the class. Students are paired with another group to compare data.

Students Discuss: As a class, students share some of the things they have learned about plants. They choose one of the plants that they saw at the arboretum to draw, using their drawn notes as reference.

Development of STEAM tenets in unit:

STEAM tenet 1: Artmaking can be a tool for making observations, finding patterns, analyzing and making predictions. Making drawings, models and paintings can help students develop and sharpen their observational skills and record important information about the world around them.

STEAM tenet 2: Inquiry and art making offer an opportunity to synthesize difficult and complex ideas/concepts using multiple modes of intelligence and communication.

STEAM Tenet 3: An artist or designer can use nature to find new ways to develop technologies and products (biomimicry), or as inspiration to respond to emotionally (biophilia).

Resources:

ELLSWORTH KELLY



At the Norton Simon Museum:

<http://www.nortonsimon.org/plants-flowers-and-fruits-ellsworth-kelly-lithographs/>

Metropolitan Museum of Art:

<http://www.metmuseum.org/en/exhibitions/listings/2012/ellsworth-kelly>

artcritical blog:

<http://www.artcritical.com/2006/06/30/ellsworth-kelly-plant-lithographs/>

Blog: <http://www.tfaoi.com/aa/5aa/5aa208.htm>

CyclamenIII, 1964

White Curve, 2001



MARIA SIBYLLA MERIAN



Wikipedia: http://en.wikipedia.org/wiki/Maria_Sibylla_Merian

Getty Museum: <http://www.getty.edu/art/exhibitions/merian/>

National Museum of Women in the Arts:

<http://www.nmwa.org/explore/artist-profiles/maria-sibylla-merian>

Plantain, 1679

VINCENT VAN GOGH



Van Gogh Museum:

<http://www.vangoghgallery.com/painting/sunflowerindex.html>

<http://www.vangoghgallery.com/painting/floral.html>

National Gallery, UK:

<http://www.nationalgallery.org.uk/paintings/learn-about-art/paintings-in-depth/sunflowers-symbols-of-happiness>

Sunflowers

Books:

- *Chrysalis: Maria Sibylla Merian and the Secrets of Metamorphosis* by Kim Todd
- *Flowers, Butterflies and Insects: 154 Engravings from "Erucarum Ortus"* by Maria Sibylla Merian
- *Drawn from Nature: The Plant Lithographs of Ellsworth Kelly*
- *Van Gogh: Up Close*